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Environmental Product Declaration

Average EPD based on average results

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021

CEM II/B-M (S-L) 42,5 N

CEM II/B-M (S-L) 32,5 R

Považská cementáreň, a.s.

Programme
EPD Square | www.epdsquare.com

Programme operator
EPD Square, s.r.o.

EPD Registration number
SQ 00-006

Publication date
30.07.2024

Revision Date
18.11.2025

Valid until
29.07.2029

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General information

Product
CEM II/B-M (S-L) 42,5 N & CEM II/B-M (S-L) 32,5 R

Programme operator
EPD Square, s.r.o.
Lermontovova 3, 811 05, Bratislava, Slovakia
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Registration number
SQ 00-006

Publication date
30.07.2024

Valid until date
29.07.2029

Owner of the declaration
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Manufacturer
Považská cementáreň, a.s.
Ul. Janka Kráľa, 018 63 Ladce, Slovakia
Email: tvrdik.m@pcla.sk
Wesbite: https://www.pcla.sk/sk/stranka/uvod

Place of production
Ul. Janka Kráľa, 018 63 Ladce, Slovakia

Product Category Rules (PCR)
The CEN standard EN 15804+A2 serves as the core PCR. In addition, EPD Square PCR v1.0, 2024 is used.

Declared unit (DU)/ Functional Unit
1 tonne

Mass per DU
1000 kg

UN CPC Code
37440

Year of study
2022

Geographical Scope
Europe

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
Sarah Curpen, Silvia Vilcekova, EPD Clarity s.r.o.

Verification type
Independent verification of the declaration and data, according to ISO14025:2006
Internal: ☐
External: ☒

Verified by
Sigita Židonienė, Vesta Consulting UAB

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).

Modules declared and geographical scope

	Product stage			Construction process stage		Use stage							End of life stage				Beyond the system boundary
	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	✓	✓	✓	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Geography	SK	SK	SK	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

Modules not declared = MND

Description of organization

Established in 1889, Považská cementáreň produces around 10 types of products. Situated in the heart of the picturesque Považie region, Považská cementáreň has been a pivotal force in the construction and infrastructure development of Slovakia for decades. Committed to environmental stewardship and operational efficiency, Považská cementáreň integrates state-of-the-art technologies and best practices to minimize its ecological footprint while maximizing resource utilization. They currently harness the energy from alternative fuels such as RDF, meat-bone meal and used tires. Through strategic investments in research and development, the company remains at the forefront of sustainable cement production, setting benchmarks for responsible industrial practices.

Product information

Product name

CEM II/B-M (S-L) 42,5 N & CEM II/B-M (S-L) 32,5 R

Product description

CEM II/B-M (S-L) 42,5 N

This cement is characterized by high ultimate strength and low heat of hydration during the solidification process. It is suitable for all classic construction works and has excellent processability. It is suitable for almost all classic construction works; it is excellently workable. It is suitable for concreting of foundations, armoured areas, for the production of blocks, thermally treated concrete, production of transport concrete, plasters and masonry cement mortars, large-volume and large-scale concreting.
CEM II/B-M (S-L) 32,5 R is packed in 25 kg paper bags, delivered on wooden pallets, and delivered by tank cars in silos or wagon RAJ type on rails.

CEM II/B-M (S-L) 32,5 R

This cement is characterized by moderate early strength development and relative low heat of hydration due to the presence of slag and limestone. It has good workability and reduced risks of thermal cracking. It is suitable for concreting foundations, reinforced surfaces, production of blocks, preheated concrete, production of ready-mixed concrete, plasters and masonry cement mortars, large-volume and large-area concreting.
CEM II/B-M (S-L) 42,5 N is delivered by tank cars in silos or by wagon RAJ type on rails.

Product specification

CEM II/B-M (S-L) 32,5 R

Standardized strength (28 days): 32,5-52,5 MPa

CEM II/B-M (S-L) 42,5 N

Standardized strength (28 days): 48-52 MPa
EN 197-1:2011 Cement. Part 1: Composition, specifications and conformity criteria for common cements
EN 197-2: 2020 Cement. Part 2: Demonstration of conformity

Geographical scope

Slovakia

Product contents information

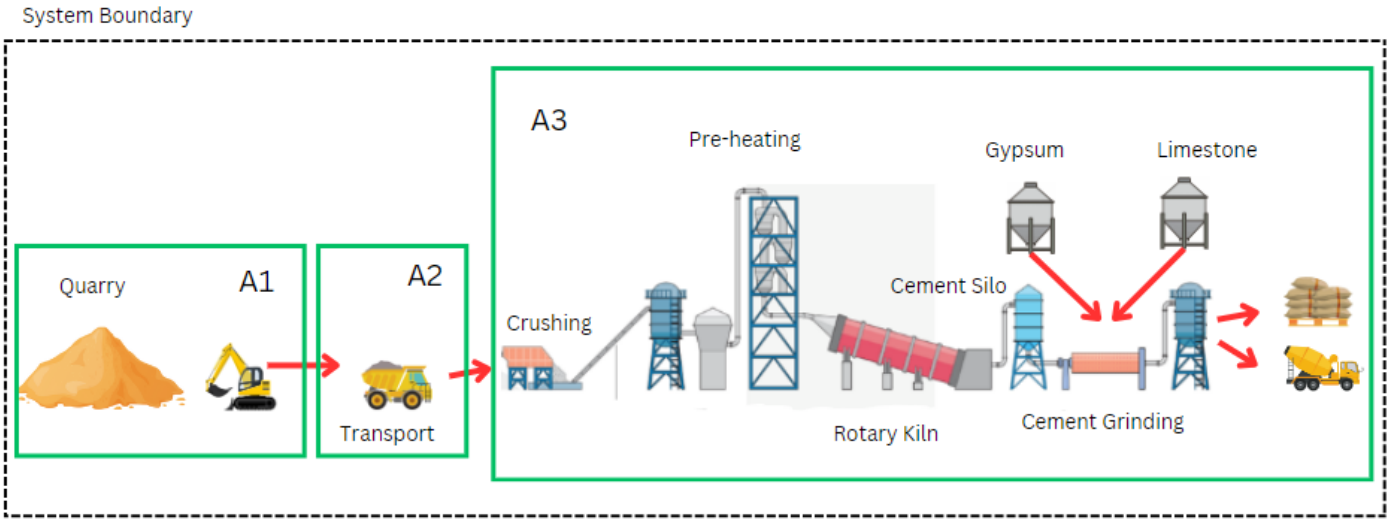
Product components	Weight, kg	Post-consumer material, weight-%	Renewable material, weight-%
Clinker	620-621	0	0
Limestone	156-157	0	0
Gypsum	60-61	0	0
Blast Furnace Slag	154-155	0	0
Others	7.9-8.1	0	0
TOTAL	1000	0	0

Packaging materials *	Weight, kg	Weight-% (versus the product)
Paper	2.10	0.2
Plastic	0.40	0.04
Wood Pallet	14.6	1.5
TOTAL	17.1	

*The packaging materials apply to only to CEM II/B-M (S-L) 32,5 R.

Manufacturing process

The basic raw materials are limestone and marl from the Butkov quarry, which, after grinding with the necessary additives, are ground into a fine meal and dispensed into the rotary kiln system in a controlled manner, and at a temperature of 1450 °C Portland clinker is formed, it is then ground with additives - gypsum, limestone, blast furnace slag, fly ash and others, and the resulting product is cement. CEM II/B-M (S-L) 32,5 R is then packed into 25kg bags and transported on wooden pallets.



Life cycle assessment (LCA)

Cut-off criteria

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

Allocation, estimations and assumptions

Allocation is based on annual production rate and made with high accuracy and precision. The values for 1 tonne of the products which are used within this study are calculated by considering the total product weight per annual production. In the production plant, several kinds of products are produced; since the production processes of these products are similar, the annual production percentages are taken into consideration for allocation. According to the ratio of the annual production of the declared product to the total annual production at the factory, the annual total energy consumption, packaging materials and the generated waste per the declared product are allocated. Subsequently, the produced products output fixed to 1 tonne and the corresponding amount of product is used in the calculations.

Database(s) and LCA software

This EPD has been created using One Click LCA Pre-Verified EPD Generator. Ecoinvent v3.8 and One Click LCA databases were used as sources of environmental data. Characterization factors CML-IA version 4.1 have been used throughout the study.

LCA Scenario and additional technical information

Manufacturing energy scenario

Electricity data source and quality	Electricity, Slovakia, residual mix
Electricity CO_2e / kWh	0.25
Energy data source and quality (Coal)	Heat production, at hard coal industrial furnace 1-10MW, Europe
Heat production (coal) kg CO_2e / kWh	0.14
Energy data source and quality (Heavy Fuel)	Heat production, heavy fuel oil, at industrial furnace 1MW
Heat production (heavy fuel) kg CO_2e / MJ	0.093
Energy data source and quality (Biomass)	Heat production, untreated waste wood, at furnace 1000-5000 kW
Heat production (Biomass) kg CO_2e / MJ	[-]

End of Life (C1-C4, D)

The end-of-life modules (C1-C4, D) are omitted as the material fulfils the exemption criteria based on EN 15804+A2.

LCA results

Results are presented per 1 tonne (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. Conversion mass factor: 1000.

Mandatory impact category indicators – EN 15804+A2

Indicator	Unit	A1	A2	A3	A1-A3
GWP-total	kg CO_2 eq.	1.8E+01	3.6E+00	5.2E+02	5.4E+02
GWP-fossil	kg CO_2 eq.	1.8E+01	3.6E+00	5.2E+02	5.4E+02
GWP-biogenic	kg CO_2 eq.	1.9E-02	7.9E-04	5.3E-02	7.3E-02
GWP-LULUC	kg CO_2 eq.	2.4E-02	1.4E-03	5.0E-02	7.5E-02
ODP	kg CFC-11 eq.	1.6E-07	7.6E-08	6.9E-07	9.2E-07
AP	mol H^+ eq.	1.6E-01	8.6E-03	9.4E-01	1.1E+00
EP-freshwater	kg P eq.	4.1E-03	2.5E-04	6.3E-02	6.7E-02
EP-marine	kg N eq.	2.9E-02	2.3E-03	1.2E-01	1.5E-01
EP-terrestrial	mol N eq.	3.5E-01	2.4E-02	1.2E+00	1.6E+00
POCP	kg NMVOC eq.	9.7E-02	1.5E-02	3.7E-01	4.8E-01
ADP-M&M	kg Sb eq.	2.2E-03	1.0E-05	1.0E-05	2.3E-03
ADP-fossil	MJ	1.9E+02	5.5E+01	2.3E+03	2.5E+03
WDP	m^3	3.8E+00	2.8E-01	2.3E+01	2.7E+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

Additional voluntary impact indicators – EN 15804+A2

Indicator	Unit	A1	A2	A3	A1-A3
PM	Disease Incidence	2.0E-06	3.6E-07	1.1E-05	1.3E-05
IRP	kBq U235 eq.	8.7E-01	6.6E-02	6.5E+01	6.6E+01
ETP-fw	CTUe	3.9E+02	6.4E+00	2.0E+02	6.0E+02
HTP-c	CTUh	3.3E-09	6.1E-10	2.5E-08	2.9E-08
HTP-nc	CTUh	1.4E-07	3.5E-08	9.8E-07	1.2E-06
SQP	[-]	1.6E+02	5.5E+01	7.6E+02	9.7E+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

Resource use indicators

Parameter	Unit	A1	A2	A3	A1-A3
RPEE	MJ	1.9E+01	8.9E-01	1.0E+02	1.2E+02
RPEM	MJ	0.0E+00	0.0E+00	5.5E+01	5.5E+01
TPE	MJ	1.9E+01	8.9E-01	1.6E+02	1.7E+02
NRPE	MJ	1.9E+02	5.5E+01	2.3E+03	2.5E+03
NRPM	MJ	0.0E+00	0.0E+00	9.0E+00	9.0E+00
TRPE	MJ	1.9E+02	5.5E+01	2.3E+03	2.5E+03
SM	kg	2.1E+00	2.4E-02	3.1E-01	2.4E+00
RSF	MJ	3.0E-03	3.0E-04	1.8E+00	1.8E+00
NRSF	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00
W	m^3	9.9E-02	8.1E-03	1.1E+00	1.2E+00

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

Waste indicators

Parameter	Unit	A1	A2	A3	A1-A3
HW	kg	1.1E+00	7.9E-02	1.3E+01	1.5E+01
NHW	kg	4.2E+01	1.6E+00	3.1E+02	3.5E+02
RW	kg	2.2E-04	1.6E-05	1.5E-02	1.6E-02

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

Output flow indicators

Indicator	Unit	A1	A2	A3	A1-A3
CR	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MR	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MER	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EEE	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ETE	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00

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

Information describing the biogenic carbon content at factory gate

Biogenic carbon content	Unit	Value
Biogenic carbon content in product	kg C	-
Biogenic carbon content in the accompanying packaging*	kg C	7.41

*The packaging materials apply to only to CEM II/B-M (S-L) 32,5 R.

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

Specific data and data variation	
Specific data	>90%
Variation - product	5%
Variation - site	Not relevant

Hazardous substances

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

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Software
OneClickLCA

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 frameworks.

ISO 14044:2006
Environmental management - Life cycle assessment - Requirements and guidelines

EN 15804:2012+A2:2019
Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products

ISO 21930:2007
Sustainability in building construction - Environmental declaration of building products

EPD Square PCR v.1.0, 2024

EPD Square, General Programme Instructions v.1, 2024

Ecoinvent database v3.10.1 (2024) and One Click LCA database

LCA background report 29.10.2025

Annex

Environmental impact indicators – EN 15804+A1, CML/ISO 21930

Indicator	Unit	A1	A2	A3	A1-A3
GWP	kg CO_2e	1.8E+01	3.6E+00	5.2E+02	5.4E+02
ODP	kg CFC-11e	1.3E-07	6.1E-08	5.9E-07	7.8E-07
AP	kg SO_2e	1.3E-01	6.8E-03	8.1E-01	9.5E-01
EP	kg PO_4e	1.5E-02	1.7E-03	1.1E-01	1.3E-01
POCP	kg Ethenee	7.4E-03	7.0E-04	4.5E-02	5.3E-02
ADP-non fossil	kg Sbe	8.5E-05	1.0E-05	4.4E-05	1.4E-04
ADP-fossil	MJ	1.8E+02	5.4E+01	1.1E+03	1.3E+03

GWP: Global Warming Potential; 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: Eutrophication potential, fraction of nutrients reaching freshwater end compartment; POCP: Formation potential of tropospheric ozone; ADP-non fossil: Abiotic depletion potential for non-fossil resources (minerals and metals); ADP-fossil: Abiotic depletion potential for fossil resources;

Environmental impact indicator – GWP-GHG

Indicator	Unit	A1	A2	A3	A1-A3
GWP - GHG	kg CO_2e	1.8E+01	3.6E+00	5.2E+02	5.4E+02

GWP- GHG: Global Warming Potential, greenhouse gases

Revision Note – 13 November 2025

This study has been revised and updated on 13 November 2025 following the identification of an error in the energy data provided by the manufacturer in 2024. The original electricity consumption data were overestimated, resulting in higher reported environmental impacts. The corrected electricity consumption data are significantly lower, leading to an approximate 30% reduction in environmental impacts.