ENVIRONMENTAL PRODUCT DECLARATION (EPD)

CEM I 52,5N/SR5

CEMENTOS LA CRUZ

DAPcons®.NTe.248

DECLARACIÓN AMBIENTAL DE PRODUCTO
ENVIRONMENTAL PRODUCT DECLARATION

According to the standards:
ISO 14025 and UNE-EN 15804:2012+A2:2020/AC:2021

cateb Arquitectura Tècnica Barcelona

ECO PLATFORM EPD VERIFIED

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DECLARACIÓN AMBIENTAL DE PRODUCTO
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According to the standards:

ISO 14025 and UNE-EN 15804:2012+A2:2020/AC:2021

GENERAL INFORMATION

Product

CEM I 52,5N/SR5

Company

Product description

Portland cement with very high early strength, ideal for applications that require sulfate resistance and high durability against seawater and aggressive chemical environments.

Reference RCP

UNE-EN 16908:2019+A1:2022 Product category rules for cement and building lime.

Production plant

Cementos La Cruz, S.L.

Validity

From: 02/09/2025 Until: 02/09/2030

The validity of DAPcons®.NTe.248 is subject to the conditions of the regulation DAPcons®. The current edition of this DAPcons® is the one that appears in the registry maintained by Cateb; for informational purposes, it is included on the Program website www.dapcons.com

EXECUTIVE SUMMARY

CEM I 52,5N/SR5

DAPconstruction® Programme Operator
Environmental Product Declarations in the Construction sector
www.dapcons.com

Programme Manager
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Owner of the declaration
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www.cementoscruz.com

Author of the Life cycle assessment:
Cementos La Cruz, S.L
Paraje Los Tres Santos, S/N, 30640 - MURCIA, España
www.cementoscruz.com

Declared product

CEM I 52,5N/SR5

Geographic representation

Spain

Variability between different products

In this document the results of each of the products are declared individually.

Declaration number

DAPcons®.NTe.248

Issue date

28/07/2025

Validity

This verified declaration authorizes its holder to carry the logo of the operator of the ecolabelling program DAPconstruction®. The declaration is applicable exclusively to the mentioned product and for five years from the date of registration. The information contained in this statement was provided under the responsibility of: **CEMENTOS LA CRUZ, S.L.**

Programme Administrator Signature

Celestí Ventura Cisternas. President of Cateb

36548201M CELESTINO VENTURA (R: Q0875009C) 36548201M CELESTINO VENTURA (R: Q0875009C) 25.09.2025 12:46:58 +0200

Verifier Signature

Ferran Pérez Ibáñez. Institut de Tecnologia de la Construcció de Catalunya - ITeC. Verifier accredited by the administrator of the DAPcons® Programme

FERNANDO PÉREZ IBÁÑEZ FERNANDO PÉREZ IBÁÑEZ 25.09.2025 12:46:40 +0200

ENVIRONMENTAL PRODUCT DECLARATION

1. PRODUCT DESCRIPTION AND USE

CEM I 52,5N/SR5 cement is a high-performance Portland cement designed to meet the demands of projects requiring maximum strength and rapid setting.

With a compressive strength of 52.5 MPa at 28 days, this cement is ideal for projects where fast strength development is essential. Its SR classification highlights its high sulfate resistance, making it the right choice for structures located in environments with sulfate-bearing soils or waters, such as hydraulic infrastructures, foundations, or coastal areas.

This cement strictly complies with the EN 197-1:2011 standard, which establishes the composition, specifications, and conformity criteria for common cements. It also adheres to the guidelines of RC-16, included in R.D. 256/2016, regarding cement reception, and to the Structural Code approved on June 29, 2021. Thanks to this, it guarantees high standards of quality and performance, making it a safe and efficient choice for large-scale construction projects.

1.1 Content information

Product components

Composition of CEM I 52.5N/SR5 cement according to UNE-EN 197-1:

Clinker: 95–100%
Minor components: 0–5%

These values refer to the cement core, excluding calcium sulfate and any additives.

Packaging materials

Bulk cement

2. DESCRIPTION OF THE STAGES OF THE LIFE CYCLE

2.1. Manufacturing (A1, A2 y A3)

Raw Materials and transport (A1 y A2)

The raw materials used in the manufacture of CEM I 52.5N/SR5 cement include clinker and gypsum. The clinker is produced in international plants, taking into account the environmental impact of the production processes. The gypsum is sourced from regional quarries, considering the stages of extraction, crushing, and preparation.

The clinker is transported from the production plants by sea to the destination port, and from there by road to the grinding plant in Abanilla. The gypsum, being of regional origin, is transported directly from the quarries by land.

Manufacturing (A3)

Cement production is carried out through a controlled process of grinding and blending the raw materials. These materials are stored, dosed, and transported via mechanized systems to the production unit. Once the final product is obtained, the cement is dispatched in bulk for commercial distribution.

2.2. Construction process stage (A4 y A5)

Transport to the building site (A4)

Undeclared

Product installation process and construction (A5)

Undeclared

2.3. Product use (B1-B7)

Use (B1)

Undeclared

Maintenance (B2)

Undeclared

Repair (B3)

Undeclared

Replacement (B4)

Undeclared

Refurbishment (B5)

Undeclared

Operational energy use (B6)

Undeclared

Operational water use (B7)

Undeclared

2.4. End of life (C1-C4)

Deconstruction and demolition (C1)

Undeclared

Transport to waste processing (C2)

Undeclared

Waste processing for reuse, recovery and/or recycling (C3)

Undeclared

Disposal (C4)

Undeclared

2.5. Reuse/recovery/recycling potential (D)

Undeclared

3. LIFE CYCLE ASSESSMENT

The Life Cycle Assessment (LCA) supporting the Product Environmental Declaration has been developed in accordance with the most recognized European standards for sustainability in construction. In particular, the UNE-EN 15804:2012+A2:2020/AC:2021 standard has been followed, which defines the basic rules for environmental product declarations for construction products; UNE-EN 16908:2019, which complements this standard for products such as cements and limes; and UNE-EN ISO 14040:2006, which establishes the principles and framework for life cycle assessment within environmental management.

The scope of the study covers all stages from raw material extraction to the dispatch of cement from the plant, following the “cradle to gate” approach, considering exclusively the internal processes up to the point when the product is ready for distribution. The system boundary defines the unit processes that must be included in the model.

The establishment of these boundaries is based on two fundamental principles:
- “Modularity principle”: Processes that affect the environmental performance of the product during its life cycle must be assigned to the life cycle module in which they occur. All environmental aspects and impacts must be reported in the stage of the life cycle in which they take place.
- “Polluter pays” principle: Processes related to waste treatment are assigned to the system of the product generating the waste, until the end-of-waste condition is reached.

Consequently, the results of the LCA do not include emissions generated by the treatment of waste derived from the use of the product.

3.1. Declared Unit

For the production of CEM I 52.5N/SR5 cement, the declared unit is 1,000 kg, equivalent to 1 ton of product.

Additional comments

As with any industrial activity, cement production involves the use of natural resources and generates environmental impacts that may contribute to global challenges, such as climate change.

This Life Cycle Assessment (LCA) allows for an objective evaluation of the environmental impacts associated with the manufacture of CEM I 52.5N/SR5 cement, taking into account all stages of the process, from raw material acquisition to the dispatch of the product from the plant.

3.2. Scope and modules that are declared

Table 2. Declared modules

Product stage			Construction Process Stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw materials supply	Transport	Manufacturing	Transport	Construction - Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction	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	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

X = Declared module **MND** = Undeclared module

3.3. LCA results of potential environmental impact referred to the declared unit (ACV)

Table 3. Parameters of environmental impact

Parameter	Unit	Life cycle stage																Module D
		Product stage			Construction Process Stage		Use stage							End of life stage				
		A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Climate change - total (GWP-total)	kg CO2 eq	8.30E+02	2.68E+01	1.38E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Climate change - fossil (GWP-fossil)	kg CO2 eq	8.16E+02	2.68E+01	1.36E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Climate change - biogenic (GWP-biogenic)	kg CO2 eq	1.39E+01	2.81E-03	9.46E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Climate change - land use and changes in land use (GWP-luluc)	kg CO2 eq	2.43E-01	1.98E-02	1.09E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Ozone layer depletion (ODP)	kg CFC 11 eq	3.12E-05	5.54E-06	9.57E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Acidification (AP)	mol H+ eq	2.24E+00	5.77E-01	1.16E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Eutrophication of fresh water (EP-freshwater)	kg P eq	1.02E-01	1.30E-03	4.94E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Eutrophication of sea water (EP-marine)	kg N eq.	6.19E-01	1.33E-01	1.85E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Terrestrial eutrophication (EP-terrestrial)	mol N eq.	7.01E+00	1.47E+00	1.92E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Photochemical ozone formation (POCP)	kg NMVOC eq	9.13E+00	3.95E-01	5.17E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Depletion of abiotic resources - minerals and metals (ADP-minerals&metals)	kg Sb eq	1.04E-04	4.99E-05	1.61E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Depletion of abiotic resources - fossil fuels (ADP-fossil)	MJ, net calorific value	3.2E+03	3.63E+02	3.25E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Water consumption (WDP)	m3 worldwide eq. private	-5.36E+01	9.78E-01	8.94E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Eco-toxicity - freshwater (ETP-fw)	CTUe	5.50E+03	2.58E+02	2.07E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Human toxicity, cancer effect (HTP-c)	CTUh	3.62E-07	1.58E-08	4.57E-09	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Human toxicity, non-cancer effects (HTP-nc)	CTUh	5.48E-06	2.08E-07	1.39E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
The Indicador includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This Indicador is thus equal to the GWP Indicador originally defined in EN 15804:2012+A1:2013. Can be obtained from IPCC characterization factors.																		
Global Warming Potential (GHG)	kg CO2 eq	8.30E+02	2.68E+01	1.38E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

A1 Supply of raw materials. **A2** Transport to waste processing. **A3** Manufacturing. **A4** Transport to waste processing. **A5** Installation and construction processes. **B1** Use. **B2** Maintenance. **B3** Repair. **B4** Replacement. **B5** Refurbishment. **B6** Operational energy use. **B7** Operational water use. **C1** Deconstruction and demolition. **C2** Transport to waste processing. **C3** Waste management for reuse, recovery and recycling. **C4** Fine removal. **D** Environmental benefits and burdens beyond the system boundary. **MND** Undeclared module.

Table 4. Parameters for the use of resources, waste and output material flows

Parameter	Unit	Life cycle stage																Module D
		Product stage			Construction Process Stage		Use stage							End of life stage				
		A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Use of renewable primary energy excluding renewable primary energy resources used as feedstock	MJ, net calorific value	9.70E+01	3.24E+00	7.22E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Use of renewable primary energy used as raw material	MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Total use of renewable primary energy (primary energy and renewable primary energy resources used as feedstock)	MJ, net calorific value	9.70E+01	3.24E+00	7.22E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Non-renewable primary energy use, excluding non-renewable primary energy resources used as feedstock	MJ, net calorific value	4.15E+03	3.85E+02	3.37E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Use of non-renewable primary energy used as raw material	MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Total use of non-renewable primary energy (primary energy and renewable primary energy resources used as feedstock)	MJ, net calorific value	4.15E+03	3.85E+02	3.37E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Use of secondary materials	kg	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Use of renewable secondary fuels	MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Use of non-renewable secondary fuels	MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Net use of freshwater resources	m3	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Hazardous waste removed	kg	0.00E+00	0.00E+00	8.60E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Non-hazardous waste eliminated	kg	0.00E+00	0.00E+00	5.13E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Radioactive waste disposed of	kg	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Components for reuse	kg	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Materials for energy recovery (energy recovery)	kg	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Exported energy	MJ by energy vector	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Exported electrical energy (AEE)	MJ	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Exported thermal energy (EET)	MJ	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

A1 Supply of raw materials. **A2** Transport to waste processing. **A3** Manufacturing. **A4** Transport to waste processing. **A5** Installation and construction processes. **B1** Use. **B2** Maintenance. **B3** Repair. **B4** Replacement. **B5** Refurbishment. **B6** Operational energy use. **B7** Operational water use. **C1** Deconstruction and demolition. **C2** Transport to waste processing. **C3** Waste management for reuse, recovery and recycling. **C4** Fine removal. **D** Environmental benefits and burdens beyond the system boundary. **MND** Undeclared module.

Table 5. Kg of biogenic carbon

Carbon content (biogenic) - packaging	0.00E+00
Carbon content (biogenic) - product	0.00E+00

3.4. Recommendations of this EPD

Environmental Product Declarations (EPDs) from different calculation programs are not directly comparable, as the calculation rules may differ.
This declaration reflects the environmental performance of the product CEM I 52.5N/SR5 cement, manufactured by Cementos La Cruz S.L.

3.5. Cut-off rules

The Product Environmental Declaration has been prepared in accordance with UNE-EN 16908:2019+A1:2022 “Construction cements and limes. Environmental product declarations. Product category rules complementary to EN 15804”. According to this standard, the EPD provides quantified environmental information for a construction product based on a scientific and harmonized approach, with the purpose of providing a basis for assessing and identifying products that exert less pressure on the environment.

More than 95% of all mass and energy inputs and outputs of the system have been included, taking into account the exclusion of additives used in the production of this cement and steel ball losses, due to lack of data and because they contribute less than 1% of the total environmental impact. Additionally, the bagging process is omitted, since the product is supplied in bulk.

3.6. Additional environmental information

Cement is classified as an irritant and harmful product; however, once it has set, it is not hazardous to the environment, becoming an inert product that does not release dangerous substances.

Cementos La Cruz holds several certifications that support its commitment to quality, sustainability, and energy efficiency. Since 2017, the company has held ISO 9001:2015 certification, granted by AENOR, which validates the implementation of a management system focused on continuous improvement and customer satisfaction. In the same year, it also obtained ISO 14001:2015 certification, recognizing responsible environmental management aimed at preventing impacts and controlling risks associated with its activities.

In 2023, Cementos La Cruz further strengthened its commitment to sustainability by obtaining ISO 50001:2018 certification, which establishes the foundations for efficient and optimized energy management.

These certifications reflect the company’s approach toward responsible, efficient, and environmentally respectful operations, aligned with the principles of sustainability and continuous improvement.

3.7. Other data

The Life Cycle Assessment (LCA) of CEM I 52.5N/SR5 cement has enabled a detailed evaluation of the environmental impacts associated with its production, from raw material extraction to final manufacturing. This assessment has provided key information on resource consumption, emissions, and waste generated during the production process.

The results highlight the importance of optimizing raw material use and improving energy efficiency in cement production. They also underscore the need to continue promoting measures that minimize environmental impact, such as the use of alternative fuels, incorporation of renewable energy sources, and improvements in transportation logistics to reduce CO_2 emissions.

4. ADDITIONAL TECHNICAL INFORMATION AND SCENARIOS

4.1. Transport to the building site (A4)

Undeclared

4.2. Installation processes (A5)

Undeclared

4.3. Reference life (B1)

Undeclared

4.4. Maintenance (B2), Repair (B3), Replacement (B4), or Refurbishment (B5)

Maintenance (B2)

Undeclared

Repair (B3)

Undeclared

Replacement (B4)

Undeclared

Refurbishment (B5)

Undeclared

4.6. Operational energy use (B6) and operational water use (B7)

Undeclared

4.7. End of life (C1-C4)

Undeclared

5. ADDITIONAL INFORMATION

6. PCR AND VERIFICATION

This statement is based on Document

UNE-EN 16908:2019+A1:2022 Product category rules for cement and building lime. Cement and building lime.

Independent verification of the declaration and data, in accordance with ISO 14025 and IN UNE-EN 16908:2019+A1:2022

☑ External

Third party Verifier

Ferran Pérez Ibáñez
Accredited by the administrator of the DAPcons® Programme

Verification date:

01/09/2025

References

- UNE-EN 16908:2019+A1:2022 “Construction cements and limes – Environmental product declarations – Product category rules complementary to EN 15804.”
- UNE-EN 15804:2012+A2:2020/AC:2021 “Sustainability in construction – Environmental product declarations – Core rules for the product category of construction products.”
- Ecoinvent 3.
- International Reference Life Cycle Data System (ILCD) Handbook.
- UNE-EN ISO 14040:2006. Environmental Management and Life Cycle Assessment – Principles and framework.
- UNE-EN ISO 14044:2006. Environmental Management and Life Cycle Assessment – Requirements and guidelines.

Programme Manager

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