Environmental Product Declaration

GROUP CEMENTOS PORTLAND VALDERRIVAS

FACTORY OF MORATA DE TAJUÑA, EL ALTO

WHITE CEMENT BL I 52,5 R

EPD developed and verified according to:

EN ISO 14025:2010
EN 15804:2012 +A2: 2019
EN 16908: 2017+A1:2022

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The holder of this declaration is responsible for its content, as well as for retaining the supporting documentation that justifies the data and statements included during the validity period

GROUP CEMENTOS PORTLAND VALDERRIVAS

M-311 Road, km 4.5. 28530
Morata de Tajuña, Madrid, Spain.
Tel. (+34) 91 874 05 00.

Web: https://www.valderrivas.es/fabricas/el-alto/

LCA Study

Spanish Institute of Cement and its Applications

Tel. (+34) 91 442 93 11
Web: www.ieca.es

GlobalEPD Programme Administrator

AENOR CONFÍA, S.A.U.
Génova St. 6
28004 – Madrid, Spain

Tel. (+34) 902 102 201
Mail: aenordap@aenor.com
Web: www.aenor.com

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EN 16908:2017+A1:2022

The European Standard EN 15804:2012+A2: 2019 serves as the basis for the PCR

Independent verification of the declaration and the data, in accordance with Standard EN ISO 14025:2010

☐ Internal ☒ External

Verification body

Product certification body accredited by ENAC with accreditation No. 1/C-PR468

Contents

1. General information

1.1. The organisation

Cementos Portland Valderrivas is a Spanish multinational in the cement manufacturing industry with more than 100 years of experience in the production and distribution of cement and its derived products: concrete, mortar and aggregate.

Innovation and continuous improvement have given us a leading position in the Spanish market, where we supply our products from the 7 factories we have distributed throughout the country. In the markets of Tunisia and the United Kingdom, we also have factories and import terminals, establishing ourselves there too as a benchmark in the sector. We are committed to the sustainability of our planet and we give the very best of ourselves to keep developing the products that responsibly continue to build the cities of the future.

The cement covered by this declaration is produced at the Morata de Tajuña Factory, located 35 km from Madrid, between the towns of Arganda and Morata de Tajuña, specifically on the Puente de Arganda to Chinchón road M-311 at km 4.5.

It is located at the site known as El Alto, as it lies at one end of the plateau separating the Jarama valleys from those of the Tajuña at an altitude of 700 m. It has two production lines of grey and white Clinker of 300,000 and 2,300,000 tonnes per year, equipped with the highest manufacturing technology.

1.2. Scope of the Declaration

This declaration covers cement BL I 52,5 R manufactured in accordance with standards UNE-EN 197-1 and UNE 80305 under an A1-A3 scheme. Cements do not declare beyond module A3 since they lose their physical identity or are not recognisable or separable on site.

1.3. Life cycle and conformity

AENOR GlobalEPD Programme Génova 6 - 28004 Madrid (Spain)
914 326 000 - aenordap@aenor.com
www.aenor.com

This EPD has been developed and verified in accordance with Standards EN ISO 14025:2010 and EN 15804:2012+A2:2019 and the following Category Rule:

PRODUCT CATEGORY RULES INFORMATION	
Descriptive title	Cements and building limes. Environmental product declarations. Product category rules complementary to standard EN 15804
Registration code and version	EN 16908:2017+A1:2022
Date of issue	2022
Conformity	EN 15804:2012 + A2:2019
Programme Administrator	AENOR

This Environmental Declaration includes the following life cycle stages:

SYSTEM BOUNDARIES. INFORMATION MODULES CONSIDERED			
Product stage	A1	Raw material supply	X
	A2	Transport to factory	X
	A3	Manufacturing	X
Construction stage	A4	Transport to site	ND
	A5	Installation / construction	ND
Use stage	B1	Use	ND
	B2	Maintenance	ND
	B3	Repair	ND
	B4	Replacement	ND
	B5	Refurbishment	ND
	B6	Operational energy use	ND
	B7	Operational water use	ND
End-of-life stage	C1	Deconstruction/demolition	ND
	C2	Transport	ND
	C3	Waste processing	ND
	C4	Disposal	ND
Resource recovery stage	D	Reuse, recovery and/or recycling potential	ND

X = Module included in the LCA; NR = Module not relevant; ND = Module not declared

This EPD may not be comparable with those developed in other programs or according to different reference documents; specifically, it may not be comparable with EPDs not prepared in accordance with Standard EN 15804+A2.

Likewise, this EPD may not be comparable if the origin of the data is different (for example, the databases), not all relevant information modules are included, or they are not based on the same scenarios.

The comparison of construction products must be made on the same function, applying the same functional unit and at the building level (or architectural or engineering work), that is, including the performance of the product throughout its entire life cycle, as well as the specifications of section 6.7.2 of Standard UNE-EN ISO 14025.

2. The Product

2.1. Product identification

Cement is a hydraulic binder, that is, a finely ground inorganic material which, when mixed with water, forms a paste that sets and hardens through hydration reactions and processes and which, once hardened, retains its strength and stability even under water.

Cement produced in accordance with the European cement standards and named according to its different types will be capable, when appropriately dosed with water and aggregates, of producing a concrete or a mortar that retains its workability for a sufficient time and must reach the specified strength levels after defined periods and also exhibit long-term volume stability.

The hydraulic hardening of cement is due mainly to the hydration of the calcium silicates, although other chemical compounds such as aluminates may also take part in the hardening process.

Cement BL I 52,5 R is a high-performance cement, used to produce high-strength concretes with an exposed or decorative finish, very suitable for the industrial manufacture of precast structural elements that require maximum strength and a white or coloured finish.

Its high performance makes it especially suitable for producing prestressed concretes in which a white or coloured finish is required.

The classification of the cement according to the UN Central Product Classification corresponds to code 37440.

2.2. Product performance

Cement is used mainly for the manufacture of concretes, mortars and cement-based precast elements. It therefore has countless applications in construction, meeting the required durability and structural reliability demands. Its applications include, among others: structures, building, roads and pavements, ports and maritime works, airports, dams, canals, treatment plants and hydraulic works. Cement BL I 52,5 R may be used in accordance with the indications specified in the cement reception instruction RC16 and in the Structural Code.

The CE marking of this cement guarantees compliance with the mechanical, physical and chemical requirements set out in standards EN 197-1 and UNE 80305, which are listed in the following table:

Performance	Specification
Initial setting time	≥ 45 min
Compressive strength 2 days	≥ 30.0 MPa
Compressive strength 28 days	≥ 52.5 MPa
Chlorides	≤ 0.10 %
Sulfates	≤ 4.0 %
Expansion	≤ 10 mm
Loss on ignition	≤ 5.0 %
Insoluble residue	≤ 5.0 %
L*	≥ 85 CIELAB

2.3. Product composition

The composition of cement BL I 52,5 R according to standard UNE-EN 197-1 is included in the following table:

Cement	Clinker (%)	Limestone L (%)	Pozzolana (%)	Fly ash (%)	Slag (%)	Limestone LL (%)	Minor additional constituents (%)
BL I 52,5 R	95-100	-	-	-	-	-	0-5

These composition values, as expressed in the standard, refer to the sum of the main constituents and additional minor constituents of the cement, excluding the setting regulator, grinding additives and Cr (VI) reducers present in the cement formulation, which have been considered in this declaration.

Additionally, it is reported that none of the components of the final product is included in the “Candidate List of Substances of Very High Concern for Authorisation”.

3. LCA information

3.1. Life cycle assessment

The life cycle assessment is described in the factory LCA project report of May 2026, taking the 2025 data as reference data.

For the assessment in terms of environmental impacts, the software tool called èdit® in its version 1.73.0 and Ecoinvent 3.11 database was used.

3.2. Declared unit

Declared unit: 1,000 kg (1 tonne of cement)

3.3. Reference service life (RSL)

The reference service life is linked to the service life of the structural elements into which it is integrated, since cement on its own is not identifiable or separable on site.

3.4. Allocation criteria

A physical, mass-based criterion has been applied to allocate the inputs and outputs of the production system to each product, according to production, for the flows associated with the production process, such as energy consumption and waste generation.
For the allocation of co-products, an economic allocation has been followed in accordance with section 6.4.3.3 of EN 16908.

3.5. Cut-off rules

The cut-off rules specified in EN 15804 have not been applied in this study.

3.6. Representativeness, quality and selection of the data

This EPD has been prepared with primary data for the sourcing, transport and manufacturing stages. These primary data collected at the factory come from the records of the plant management systems and the control system. The primary data are fully traceable.

Transport and impact-calculation models have also been used for those stages upstream of the process. In these cases, the Ecoinvent 3.11 database was used.

Regarding energy consumption, the specific electricity mix of the electricity retailer has been used, together with the renewable energy consumed, partly sourced through PPA contracts and partly covered by Guarantees of Origin.

In accordance with Annex E of UNE-EN 15804, a data quality assessment has been carried out based on geographical, technological, and temporal representativeness. The origin of the data and the selected quality level (very good) are justified below.

3.7. Other calculation rules and assumptions

It has not been necessary to use calculation rules other than those mentioned so far.

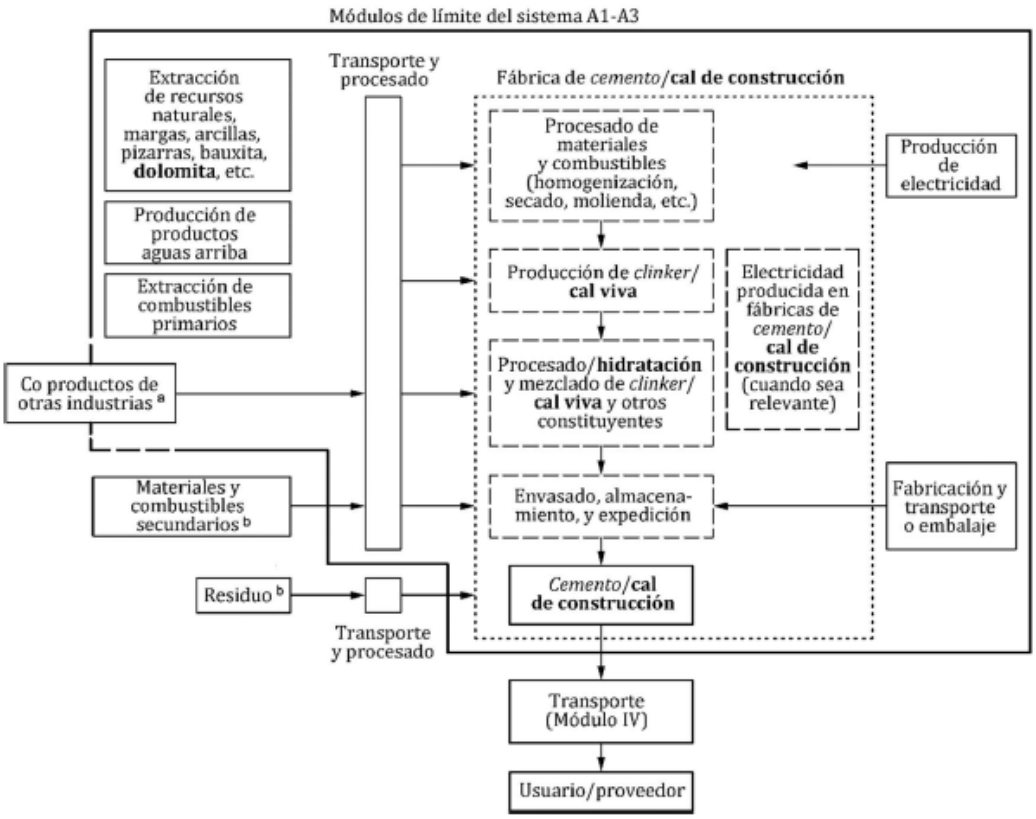
3.6.1 Biogenic carbon

The declaration of biogenic carbon is omitted both in the product and in the packaging since, owing to the nature of the product, both are well below the 5% limit with respect to the total mass of the product, in accordance with what is indicated in standard UNE-EN 15804:2012 +A2:2020.

4. System boundaries, scenarios and additional technical information

This EPD includes modules A1-A3, product stage, in accordance with the modular scheme of standard UNE EN 15804+ A2.

The following figure schematically defines the system boundaries*. The system boundaries correspond to the cement manufacturing process:



* It should be noted that the figure includes a reference to lime, a product that is also within the scope of the specific PCR.

In the cement manufacturing process the following stages are distinguished, which have been included in the life cycle assessment.

4.1. A1. Raw material extraction and preparation

The cement manufacturing process begins with the extraction of the raw materials. The quarries are worked by blasting or by excavation depending on the nature of the material being extracted. The main raw materials are limestones and marls.

4.2. A2. Transport to factory

The material is crushed to the appropriate particle size and transported to the factory, where applicable, to the pre-homogenisation yard. The remaining raw materials and fuels are transported to the factory by ship, road and rail.

4.3 A3. Product manufacture

Raw meal homogenisation and grinding

Where necessary, in the pre-homogenisation yard the crushed material is stored in uniform layers so that its subsequent grinding has an appropriate mixture of its components, reducing its variability. The material passes to vertical or ball mills from where, once ground, it is stored in silos awaiting firing in the kiln.

Cyclone preheater

The kiln is fed through the cyclone preheater, which heats the raw material, called raw meal, to facilitate its firing. The raw meal, introduced at the top of the tower, descends counter-current with the kiln gases, preheating it to a temperature of 1,000 °C.

Clinker manufacture

The raw meal enters the kiln as it rotates. The temperature rises to approximately 1,500 °C, at which point the complex chemical reactions that give rise to clinker take place. The fuels that feed the kiln are fossil fuels (petroleum coke) and alternative fuels (RDF Refuse-Derived Fuels, sewage sludge or olive pomace).

Next, the clinker is cooled at the kiln outlet by injecting air that reduces its temperature.

Cement grinding

The clinker mixed with gypsum and additions in the proportions indicated in 2.3 is ground in a ball mill to the required fineness.

Dispatch

The cement is stored in silos before being bagged or discharged into a tanker truck for transport by road or rail.

5. Declaration of the environmental parameters of the LCA and the LCI

Environmental impacts

The estimated impact results are relative and do not indicate the final value of the impact categories, nor do they refer to threshold values, safety margins or risks.

Parameter	Units	A1	A2	A3	A1-A3
GWP-total	kg CO_2 eq	173,79	37,92	1.065,99	1.277,70
GWP-biogenic	kg CO_2 eq	0,42	0,03	0,03	0,47
GWP-fossil	kg CO_2 eq	173,28	37,88	1.065,94	1.277,10
GWP-LULUC	kg CO_2 eq	0,08	0,01	0,03	0,12
ODP	kg CFC11 eq	9,6E-06	8,3E-07	4,1E-07	1,1E-05
AP	mol H+ eq	8,6E-01	8,1E-02	4,0E-01	1,3E+00
EP-freshwater	kg P eq	2,2E-02	2,6E-03	3,8E-03	2,9E-02
EP-marine	kg N eq	1,5E-01	2,0E-02	1,8E-01	3,5E-01
EP-terrestrial	mol N eq	1,6E+00	2,1E-01	2,0E+00	3,9E+00
POCP	Kg NMVOC eq	1,3E+00	1,3E-01	4,9E-01	1,9E+00
ADP-minerals & metals[2]	kg Sb eq	4,6E-04	1,3E-04	1,5E-04	7,4E-04
ADP-fossil	MJ	8,8E+03	5,4E+02	3,9E+02	9,7E+03
WDP	m^3	4,8E+01	2,1E+00	8,3E+00	5,8E+01

GWP - total: Global warming potential; **GWP - fossil**: Global warming potential of fossil fuels; **GWP - biogenic**: Biogenic global warming potential; **GWP - luluc** : Global warming potential from 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 the freshwater end compartment; **EP-marine**: Eutrophication potential, fraction of nutrients reaching the end compartment of marine water; **EP-terrestrial**: Eutrophication potential, accumulated exceedance; **POCP**: Tropospheric ozone formation potential; **ADP-minerals&metals:** Abiotic resource depletion potential for non-fossil resources; **APD-fossil**: Abiotic resource depletion potential for fossil resources; **WDP**: Water deprivation potential (user), weighted water deprivation consumption. **NR:** Not relevant

The **GWP gross** figure, which incorporates the fossil emissions of the alternative fuels, is **1.277,7 kg CO2 eq.**

Additional environmental impacts

Parameter	Units	A1	A2	A3	A1-A3
PM	Disease incidence	9,7E-06	2,8E-06	2,6E-06	1,5E-05
IRP[1]	kBq U235 eq	2,8E+01	6,5E-01	1,1E+01	4,0E+01
ETP-fw[2]	CTUe	4,4E+02	7,2E+01	4,1E+01	5,5E+02
HTP-c[2]	CTUh	3,8E-08	6,3E-09	1,1E-08	5,5E-08
HTP-nc[2]	CTUh	9,8E-07	3,4E-07	7,9E-07	2,1E-06
SQP[2]	-	8,4E+02	3,2E+02	2,7E+02	1,4E+03

PM: Potential incidence of disease due to particulate matter (PM) emissions; **IRP**: Human exposure efficiency potential relative to U235; **ETP-fw:** Comparative toxic unit potential for ecosystems - freshwater; **HTP-c:** Comparative toxic unit potential for ecosystems - carcinogenic effects; **HTP-nc:** Comparative toxic unit potential for ecosystems - non-carcinogenic effects; **SQP:** Soil quality potential index.; **NR**: Not relevant

1: This impact category deals mainly with the potential effects of low doses of ionising radiation on human health, from the nuclear fuel cycle. It does not consider the effects due to possible nuclear accidents or occupational exposure due to the disposal of radioactive waste in underground facilities. The ionising radiation potential of the soil, due to radon or to some construction materials, is likewise not measured by this parameter.
2: The results of this environmental impact indicator must be used with caution, since the uncertainties of the results are high and experience with this parameter is limited.

Resource use

Parameter	Units	A1	A2	A3	A1-A3
PERE	MJ	4,6E+02	8,6E+00	2,2E+02	7,0E+02
PERM	MJ	0,0E+00	0,0E+00	6,9E+00	6,9E+00
PERT	MJ	4,6E+02	8,6E+00	2,3E+02	7,0E+02
PENRE	MJ	8,8E+03	5,4E+02	3,8E+02	9,7E+03
PENRM	MJ	0,0E+00	0,0E+00	9,3E+00	9,3E+00
PENRT	MJ	8,8E+03	5,4E+02	3,9E+02	9,7E+03
SM	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00
RSF	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00
NRSF	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00
FW	m^3	1,3E+00	6,8E-02	1,7E-01	1,5E+00

PERE : Use of renewable primary energy excluding renewable primary energy resources used as raw material; **PERM**: Use of renewable primary energy used as raw material; **PERT:** Total use of renewable primary energy; **PENRE**: Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw material; **PENRM**: Use of non-renewable primary energy used as raw material; **PENRT**: Total use of non-renewable primary energy; **SM**: Use of secondary materials; **RSF:** Use of renewable secondary fuels; **NRSF**: Use of non-renewable secondary fuels; **FW**: Net use of fresh water resources; **NR:** Not relevant

Waste categories

Parameter	Units	A1	A2	A3	A1-A3
HWD	kg	7,9E-02	1,4E-02	8,5E-02	1,8E-01
NHWD	kg	8,0E+01	2,6E+01	5,5E+00	1,1E+02
RWD	kg	6,6E-03	1,6E-04	2,6E-03	9,3E-03

HWD: Hazardous waste disposed; **NHWD**: Non-hazardous waste disposed; **RWD**: Radioactive waste disposed; **NR**: Not relevant

Output flows

Parameter	Units	A1	A2	A3	A1-A3
CRU	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00
MFR	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
EE	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00

CRU: Components for reuse; **MFR:** Materials for recycling; **MER**: Materials for energy recovery; **EE:** Exported energy; NR: Not relevant

6. Additional environmental information

The Morata de Tajuña factory has an ISO 9001 Quality Management System, an ISO 14001 Environmental Management System and the European EMAS Regulation, an ISO 50001 Energy Management System and an ISO 45001 Occupational Health and Safety Management System.

7. References

- General instructions of the GlobalEPD Programme, 3rd revision of 9-10-2023.
- Factory LCA report of May 2026.
- Specific Regulation for the AENOR N Mark and Sustainable N Mark for Cements, RP 15.01
- RD 256/2016 Instruction for the reception of cements RC-16
- RD 470/2021 Structural Code.
- Standard EN ISO 14025:2010 Environmental labels and declarations. Type III environmental declarations. Principles and procedures (ISO 14025:2006).
- Standard EN 15804:2012+A2:2019/AC:2021 Sustainability in construction. Environmental product declarations. Core product category rules for construction products.
- Standard EN 16908:2017+A1:2022. Cements and building limes. Environmental product declarations. Product category rules complementary to standard EN 15804.
- Standard EN ISO 14040:2006/A1:2021. Environmental management. Life cycle assessment. Principles and framework. Amendment 1. (ISO 14040:2006/Amd 1:2020).
- Standard EN ISO 14044:2006/A2:2021. Environmental management. Life cycle assessment. Requirements and guidelines. Amendment 2. (ISO 14044:2006/Amd 2:2020).
- Standard UNE-EN 197-1:2011 Composition, specifications and conformity criteria for cements. Standard UNE-EN 197-2:2020 Assessment and verification of the constancy of performance.
- Standard UNE 80305:2012. White cements

- Standard UNE-EN-ISO 9001:2015 Quality management systems. Requirements (ISO 9001:2015).

- Standard UNE-EN-ISO 14001:2015 Environmental management systems. Requirements with guidance for use. (ISO 14001:2015).

- Standard UNE-EN-ISO 50001:2018 Energy management systems. Requirements with guidance for use. (ISO 50001:2018).

- Standard UNE-EN-ISO 45000:2023 Occupational health and safety management systems. Requirements with guidance for use. (ISO 45001:2018).

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