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AENOR

Environmental Product Declaration

EN ISO 14025:2010

EN 15804:2012+A2:2019

EN 16757:2022

Reinforced precast concrete wall

Date of first publication 2024-12-03

Expiration date 2029-12-02

The declared validity is subject to registration and publication in **www.aenor.com**

Registration code: GlobalEPD EN 16757-019

CONSOLIS TECNYCONTA

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The holder of this Declaration is responsible for its contents and for keeping the records and the documentation that supports data and statements included during the validity period

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AENOR is a founding member of ECO Platform, the European Association of Environmental Product Declaration Verification Programs

UNE-EN 16757: 2023
The European Standard EN 15804:2012+A2:2019 serves as the basis for CPR

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

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Verification body

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

1. General Information

1.1. The organisation

Consolis Tecnyconta is a Spanish company in the precast concrete elements industry, which activity is specialized in design, structural calculation, manufacturing, sales and assembly of residential buildings, industrial centres, data centres and any other building built by precast concrete elements.

From its beginning, in 1993, Consolis Tecnyconta has achieved to become a reference in the Spanish precast market. To get this, all the organization must be committed with the work development in a professional manner and with maximum quality standard, having the optimum customer satisfaction and the environment protection as objectives.

Entering Consolis Group, a European precast concrete leader, in 2018, was a big milestone in Consolis Tecnyconta's history. This allows the company to offer their customers a wider variety of products, services and innovative solutions.

Main location of Consolis Tecnyconta is in Tauste, a town of Zaragoza. There the main offices can be found there, as well as the manufacturing centre, a factory located in 270 000 square meters land with the manufacturing facilities holding modern industrial equipment which allows the most efficient production. Factory design and layout is the result of a strategical project conducted to improve material flow and manufacturing operations.

Consolis Tecnyconta factory holds a certified integrated management system in the following areas:

- ISO 9001. Quality
- ISO 14001. Environment
- ISO 45001. Health and Safety

1.2. Scope of the Declaration

This Environmental Product Declaration includes environmental information of reinforced precast concrete walls manufactured in the factory of Tauste (Zaragoza) with average data of 2023.

The scope of this Environmental Product Declaration (hereafter EPD) is cradle to gate with options, declaring modules A1-A5, C1-C4 and D, according to UNE-EN 15804+A2, covering with this almost the totality of the life cycle of the product, from raw material extraction to end of life.

1.3. Lifecycle and compliance

This EPD has been developed and verified in accordance with the UNE-EN ISO 14025:2010, UNE-EN 15804:2012+A2: 2020 and UNE-EN 16757:2023 (Product category rules for concrete and concrete elements).

This Environmental declaration includes the following stages of the life cycle:

System limits. Information modules considered

Product stage	A1	Raw material supply	X
	A2	Transport to factory	X
	A3	Manufacture	X
Cons-truction	A4	Transport to construction site	X
	A5	Installation/construction	X
Stage d use	B1	Use	NR
	B2	Maintenance	NR
	B3	Repair	NR
	B4	Replacement	MNE
	B5	Refurbishment	MNE
	B6	Operational energy use	NR
	B7	Operational water use	NR
End of life	C1	Deconstruction/demolition	X
	C2	Transport	X
	C3	Waste processing	X
	C4	Waste disposal	X
	D	Potential for reuse, recovery and/or recycling	X

X = Module included in the LCA; NR = Module not relevant; MNE = Module not evaluated

This EPD may not be comparable with those developed in other Programs or in accordance with different reference documents, specifically it may not be comparable with EPDs not prepared in accordance with the UNE-EN 15804+A2 Standard.

Similarly, this EPD may not be comparable if the source of the data is different (e.g. databases), not all relevant information modules are included or 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 level of the building (or architectural or engineering work), that is, including the behaviour of the product throughout its entire life cycle, as well as the specifications of section 6.7.2 of the UNE-EN ISO 14025 Standard.

2. The product

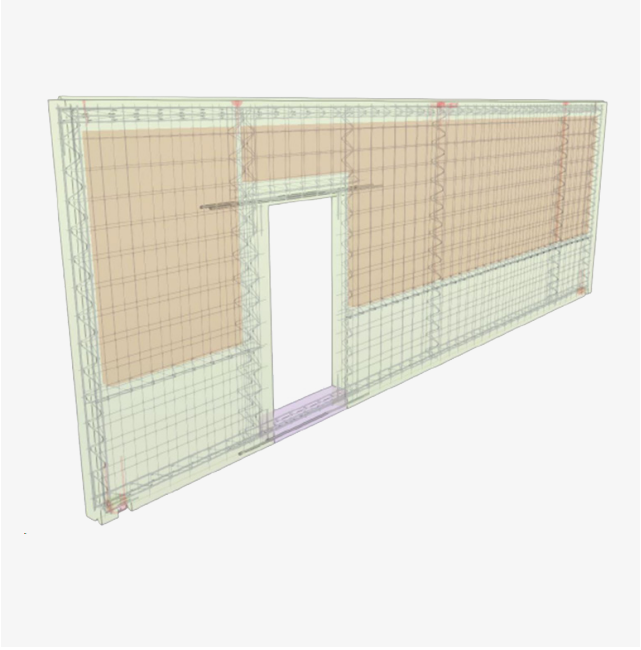
2.1. Product identification

Structural reinforced precast concrete walls (CPC code: 3754) define the division of buildings. In this category we facades, load bearing walls and inner panels among others.

There is variety of dimensions and thicknesses in the elements within this category.

For the precast concrete walls manufacturing, following materials are used:

- Concrete with typical minimum strength class C30/37, complying with national regulations (Código Estructural). Strength class will always depend on project requirements.
- Steel rebars for the reinforcement.
- EPS or similar for thermal insulation or light-weight panels.



2.2. Product features

The manufacturer declares the following information on the technical specifications of the product:

Product features

Benefit	Worth	Units
Concrete compressive strength	fck>25	N/mm^2
Steel ultimate tensile strength	ftk=550	N/mm^2
Steel tensile yield strength	fyk=500	N/mm^2

Other properties such as fire resistance or noise impact factor are calculated according to the project. Variations in these properties do not affect on EPD calculations.

The products that are included in this EPD are regulated by standards UNE-EN 14992 and UNE-EN 15258.

2.3. Product composition

The composition declared by the manufacturer is as follows:

Substance	CAS #	Weigh in final product (%)
Grey Cement	65997-15-1	13.9 – 14.2%
Calcium Carbonate	1317-65-3	1.5%
Additives	(*)	0.2%
Aggregates	NA	75 – 77%
Steel	NA	2.9 – 5%
Water	NA	4%
(*) Different type of additives. NA= Not applicable (it is not a chemical product)		

Main composition of this product is concrete (cement, aggregates, water, additives and other possible additions) and steel.

Products included in this Life Cycle Assessment do not include any substance included in the current SVHC list (Substance Of Very High Concern) in a concentration higher than 0.01% (100 ppm) taking into account the current candidate list and REACH regulations.

3. LCA Information

3.1. Life cycle Analysis

The LCA has been performed with the support of R<Think v2.0 (Simapro 9.6.0.1 is used for calculating the characterized results of the Environmental profiles within R<Think) software and with database Ecoinvent 3.9.1. The characterization factors used are those included in the UNE EN 15804:2012+A2:2020 standard.

The LCA background report is 2023_Reinforced precast concrete wall (ReTHiNK-68677) and was generated on 29th of July 2024. The LCA has been developed by Consolis Tecnyconta in collaboration with NIBE BV (R<Think developer).

3.2. Declared unit

1000 kg (1 ton) of precast concrete reinforced wall.

3.3. Reference Service Life (RSL)

According to UNE-EN 16757, Product Category Rules for concrete and concrete elements, in table F.2, structural concrete elements have a Reference service life of 100 years and façades a RSL of 50 years. In this EPD the RSL of the façades is declared because they are included in the average, and it is the more restrictive. Therefore, RSL is 50 years.

3.4. Allocation criteria

Allocation is done according to UNE-EN 15804:2012 + A2:2020 regulations.

Energy consumption, concrete/steel waste and other auxiliary materials such as anchoring for assembly on site and lifting hooks, are allocated in the different product groups depending on the total concrete volume produced for each of the groups.

3.5. Cut-Off Criteria

All input and output flows are considered in this LCA. The total neglected input flows do therefore not exceed the limit of 5% of energy use and mass.

3.6. Representativeness, quality and selection of data

Concrete mix design, energy and waste data are based in yearly production of 2023.

Foreground data (such as raw materials consumption, waste generation, energy and water consumption) comes from control processes in the production hall and is fully traceable.

Background data is based on supplier EPDs and Ecoinvent 3.9.1. database. Ecoinvent 3.9.1. database is less than 10 years old.

Therefore, data quality is considered good.

3.7. Other calculation rules and assumptions

- Average distance to construction site is 288 km per ton of product. This distance has been calculated as a weighted average, considering the total number of truck trips to site, distance of them and tonnage transported to each site.
- Average energy consumption on site per ton of product has been calculated as the total consumption in a specific project divided by the total tons of products assembled on that site.
- Transport type has been determined to be EURO VI because most of the trucks owned by the regular logistic operator belong to this category.

4. System limits, scenarios and additional technical information

4.1. Pre-manufacturing processes (upstream) (A1-A2)

Raw materials are processed in the origin and transported to factory by generic trucks. Truck type is considered generic as all truck categories from suppliers are not known.

100% of electric energy consumption is coming from renewable sources, specifically photovoltaic and hydroelectric power (Certified by Guarantees of origin), therefore the GWP of the specifically applied electricity mix is 0.024 kg CO2eq/kWh.

4.2. Product manufacturing (A3)

Previously to reinforcement placing and concrete pouring, the moulds are set depending on the piece to manufacture

Reinforcement mesh and lattice are placed in the moulds, always previously to concrete pouring. Afterwards, different components are placed, tying them to the cages. These components are necessary for lifting or assembling the elements for example.

Concrete raw materials are mixed in the mixer located in the batching and mixing plant. The resulting material (fresh concrete) is taken to the moulds by concrete distributors and poured. Concrete may be vibrated if necessary. In sandwich wall case, after the first layer of concrete, EPS is laid. Later, second layer of reinforcement and concrete pouring. Once the last layer of concrete has been poured, it is levelled, and surface is treated.

Concrete must reach a minimum compressive strength to be able to demould. When the strength has been achieved, the moulds sides are taken away and the pieces are lifted and taken to the finishing area, where small touch ups are done when necessary and the piece is painted.

Last step is to take the element out from the production hall and transport it to the stockyard where it will wait until it is required on site.

4.3. Construction process (A4-A5)

Elements are transported to site on trucks. Average distance to site is 288 km per ton of product. This distance has been calculated as a weighted average, considering the total number of truck trips to site, distance of them and tonnage transported to each site.

Transport type has been determined as EURO VI because most of the trucks owned by the regular logistic operator belong to this category.

Stage information	Unit
Type of vehicle	EURO VI truck
Average distance	288 km

Once on site, using a telescopic crane (or two, if it is necessary because of weight and/or size), the element is lifted to the proper assembly position.

Average energy consumption on site per ton of product has been calculated as the total consumption in a specific project divided by the total tons of product assembled on that site.

When the element has been located, it is connected to the support via anchoring systems to keep it in the final position.

Module A5 - Installation

Stage information	Unit
Use of fuel in assembly site	0.457 l (per ton of product)

During 2023, more than 35 500 elements were sent to site. During that same period, rejected elements on site were 28, because of that, it is considered that waste on site is non-existent.

4.4. End of life stage (C1-C4)

All input flows (e.g. energy use for demolition or disassembly, transport to waste processing, etc.) and output flows (e.g. end-of-life waste processing of the product, etc.) are considered in this LCA. The total neglected input flows do therefore not exceed the limit of 5% of energy use and mass.

Energy consumption for demolition of precast products is based on the report NR U 5176 report made by IVL Swedish Environmental Research Institute (Erlandsson and Petersson, 2015).

In this report, it is stated that for the demolition of a precast concrete structure 10 kWh/ton of product are consumed, which equals to 1.006 litres of diesel (10kWh*3.6 (MJ per kWh)/35.8 (MJ per litre of diesel)).

Generally, pieces of precast concrete in the end of life can be crushed and separated in two major constituents:

- Concrete. Once crushed it can be used as aggregate, ballast or other construction purposes.
- Steel. It can be recycled in the steel.

According to NR U 5176 report made by IVL Swedish Environmental Research Institute (Erlandsson and Petersson, 2015), necessary energy to crush precast concrete pieces is 2 kWh/ton.

After demolition and transport of the waste streams to the applicable waste processing routes, the waste is processed for final disposal or recycling and/or reuse.

Precast concrete elements can be reused/recycled almost in full. For concrete, it can be considered that 99% of waste is reused/recycled and just 1% goes to landfill.
For steel, 95% is recyclable and 5% is considered to go to landfill in the end of life.

Some waste streams are not used for reprocessing or energy recovery but are final disposed. This is the case when the material is land-filled and/or when the product is not removed and stays in the work. The following amounts per final disposal stream are applicable for the product.

End of life

Material	Unit
Energy used in demolition	1.066 l (per ton of product)
Amount of final product that goes to recycling (once it is separated in two major constituents)	Concrete: 915.6 kg
	Steel: 29.2 kg
Amount of final product that goes to landfill (once it is separated in two major constituents)	Concrete: 9.2 kg
	Steel: 1.5 kg

4.5. Benefits and charges beyond the system

All benefits and loads beyond the system boundary resulting from reusable products, recyclable materials and/or useful energy carriers leaving the product system are considered in this LCA.

Material	Kg per ton of product
Avoided primary material; Recycling	918.4
Avoided primary material; Reuse	0
Secondary material lost	1.5
Net output flow	917.0

5. Declaration of the environmental parameters of the ACV and the ICV

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	A4	A5	B1	B2	B3	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq	1.30E+2	1.02E+1	1.40E+1	1.54E+2	2.40E+1	1.66E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.66E+0	3.66E+0	2.48E+0	6.86E-2	-6.65E+0
GWP-fossil	kg CO_2 eq	1.30E+2	1.02E+1	1.39E+1	1.54E+2	2.40E+1	1.66E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.66E+0	3.60E+0	2.48E+0	6.84E-2	-6.60E+0
GWP-biogenic	kg CO_2 eq	3.74E-1	2.68E-2	4.28E-2	4.43E-1	1.82E-2	6.71E-4	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.48E-3	6.67E-3	2.92E-4	1.47E-4	-4.74E-2
GWP-luluc	kg CO_2 eq	1.11E-1	3.63E-2	8.43E-3	1.56E-1	7.32E-3	1.84E-4	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.04E-4	1.66E-3	2.79E-4	4.02E-5	-6.67E-3
ODP	kg CFC11 eq	4.98E-6	1.77E-7	3.96E-7	5.55E-6	5.90E-6	2.58E-8	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	5.68E-8	7.66E-8	3.39E-8	1.90E-9	-9.21E-8
AP	mol H+ eq	4.09E-1	4.75E-2	6.77E-2	5.25E-1	7.73E-2	1.50E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.31E-2	1.18E-2	7.14E-3	4.94E-4	-3.20E-2
EP-freshwater	kg P eq	2.00E-3	9.88E-5	2.00E-4	2.30E-3	1.91E-4	5.86E-6	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.29E-5	2.83E-5	7.38E-6	6.40E-7	5.92E-5
EP-marine	kg N eq	1.08E-1	1.81E-2	2.53E-2	1.51E-1	1.69E-2	6.97E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.53E-2	4.04E-3	3.14E-3	1.89E-4	-8.55E-3
EP-terrestrial	mol N eq	1.16E+0	1.93E-1	2.74E-1	1.63E+0	1.89E-1	7.58E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.67E-1	4.32E-2	3.42E-2	2.03E-3	-1.03E-1
POCP	Kg NMVOC eq	3.65E-1	6.58E-2	8.36E-2	5.15E-1	7.42E-2	2.25E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.94E-2	1.84E-2	1.02E-2	7.08E-4	-3.42E-2
ADP-minerals& metals [2]	kg Sb eq	2.04E-4	3.11E-5	2.07E-5	2.56E-4	4.28E-4	5.67E-7	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.25E-6	9.46E-6	1.87E-6	9.11E-8	-1.20E-5
ADP-fossil [2]	MJ	1.02E+3	1.42E+2	1.37E+2	1.29E+3	3.90E+2	2.13E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.68E+1	5.13E+1	1.18E+1	1.63E+0	-1.17E+2
WDP [2]	m^3 world eq	2.80E+1	7.49E-1	-1.46E+0	2.73E+1	1.27E+0	4.34E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	9.55E-2	2.40E-1	8.41E-2	7.21E-2	-5.94E+1

GWP - Total: Global Warming Potential; GWP - fossil: Global warming potential of fossil fuels; GWP - biogenic: Biogenic Global Warming Potential; GWP - luluc : Global warming potential of land use and land use change; ODP: Stratospheric Ozone Depletion Potential; AP: Acidification potential, accumulated surplus; EP-freshwater: Eutrophication potential, fraction of nutrients that reach the final freshwater compartment; EP-marine: Eutrophication potential, fraction of nutrients that reach the final compartment of seawater; EP-terrestrial: Eutrophication potential, cumulative surplus; POCP: tropospheric ozone formation potential; ADP-minerals&metalsAbiotic 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

Additional environmental impacts

Parameter	Units	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B6	B7	C1	C2	C3	C4	D
PM	disease incidence	1.05E-2	8.01E-7	6.66E-4	1.12E-2	2.11E-6	4.16E-7	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	9.15E-7	2.72E-7	1.85E-7	1.05E-8	-4.79E-7
IRP [1]	kBq U235 eq	4.95E+0	5.55E-2	3.40E-1	5.34E+0	1.71E+0	4.35E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	9.57E-3	2.47E-2	1.13E-2	4.32E-4	-1.68E-1
ETP-fw [2]	CTUe	9.02E+2	1.08E+2	1.06E+2	1.12E+3	3.11E+2	1.08E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.38E+1	2.68E+1	1.45E+1	8.01E-1	1.54E+2
HTP-c [2]	CTUh	7.08E-7	5.26E-9	4.33E-8	7.57E-7	7.54E-9	4.99E-10	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.10E-9	1.52E-9	8.03E-10	2.79E-11	2.36E-8
HTP-nc [2]	CTUh	1.66E-6	1.49E-7	1.51E-7	1.96E-6	3.40E-7	1.10E-8	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.41E-8	4.78E-8	9.77E-9	7.92E-10	-2.47E-7
SQP [2]	Pt	2.60E+2	1.12E+2	2.84E+1	4.01E+2	4.47E+2	1.42E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.13E+0	5.20E+1	3.09E+0	3.24E+0	-5.84E+1

PM: Potential incidence of diseases due to particulate matter (PM) emissions; IRP : Human Potential Exposure Efficiency Relative to U235; ETP-fw : Comparative Ecosystem Toxic Unit Potential - Freshwater; HTP-c : Comparative Ecosystem Toxic Unit Potential - Carcinogenic Effects; HTP-nc : Comparative Ecosystem Toxic Unit Potential - Non-Carcinogenic Effects; SQP : Land use.; NR: Not relevant

Notice 1: This impact category deals mainly with the eventual impacts of low doses of ionizing 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 ionizing radiation potential of the ground, due to radon or from some construction materials, is not measured with this parameter either.
Notice 2: The results of this indicator of environmental impact should be used with caution, since the uncertainties of the results are high and the experience with this parameter is limited.

Use of resources

Parameter	Units	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B6	B7	C1	C2	C3	C4	D
PERE	MJ	9.69E+1	2.01E+0	6.99E+0	1.06E+2	4.91E+0	1.21E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.66E-1	7.50E-1	2.10E-1	1.38E-2	-4.45E+0
PERM	MJ	4.35E-1	0.00E+0	2.76E-2	4.63E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PERT	MJ	9.74E+1	2.01E+0	7.02E+0	1.06E+2	4.91E+0	1.21E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.66E-1	7.50E-1	2.10E-1	1.38E-2	-4.45E+0
PENRE	MJ	9.35E+2	1.51E+2	1.36E+2	1.22E+3	4.14E+2	2.26E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.98E+1	5.45E+1	1.26E+1	1.74E+0	-1.25E+2
PENRM	MJ	1.43E+2	0.00E+0	9.07E+0	1.53E+2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PENRT	MJ	1.08E+3	1.51E+2	1.45E+2	1.38E+3	4.14E+2	2.26E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.98E+1	5.45E+1	1.26E+1	1.74E+0	-1.25E+2
SM	kg	3.44E+1	0.00E+0	1.79E+0	3.62E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	MJ	3.24E+1	0.00E+0	2.05E+0	3.45E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	MJ	1.43E+2	0.00E+0	9.07E+0	1.52E+2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	m3	2.13E+0	2.26E-2	6.72E-2	2.22E+0	4.44E-2	1.50E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.31E-3	7.52E-3	2.61E-3	1.72E-3	-1.38E+0

PERE : Use of renewable primary energy excluding primary renewable energy resources used as raw material; PERM: Use of primary renewable energy used as raw material; PERT: Total use of primary renewable energy; PENRE: Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials; 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 running water resources; NR: Not relevant

Waste categories

Parameter	Units	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	D
HWD	kg	1.09E-2	9.07E-4	1.03E-3	1.28E-2	9.46E-4	1.43E-4	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.15E-4	3.19E-4	6.36E-5	8.66E-6	-2.43E-4
NHWD	kg	1.52E+1	9.40E+0	2.67E+0	2.73E+1	3.39E+1	3.04E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	6.70E-2	4.50E+0	1.89E-1	1.08E+1	1.02E-1
RWD	kg	6.52E-3	3.26E-5	4.39E-4	6.99E-3	2.66E-3	2.33E-6	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	5.13E-6	1.56E-5	1.30E-5	2.41E-7	-9.88E-5

HWD: Hazardous Waste Disposed; NHWD: Non-hazardous waste disposed of; RWD: Radioactive waste disposed of; NR: Not relevant

Output flows

Parameter	Units	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	D
CRU	kg	2.02E-2	0.00E+0	9.78E-4	2.12E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	kg	9.09E-1	0.00E+0	5.93E+1	6.02E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	9.46E+2	0.00E+0	0.00E+0
MER	kg	4.34E-5	0.00E+0	2.30E-6	4.57E-5	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EEE	MJ	0.00E+0	0.00E+0	-8.62E-2	-8.62E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-2.74E+0

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

Information on biogenic carbon content

Biogenic carbon content	Units	Result by declared functional unit
Product biogenic carbon content - KgC	Kg C	0.09705
Biogenic carbon content packaging - KgC	Kg C	0

6. Additional environmental information.

The factory located in Tauste holds management systems according to ISO 9001, ISO 14001 and ISO 45001.

References

[1] LCA report – 2023_Reinforced precast concrete wall (ReTHiNK-68677) – 29/07/2024.

[2] Instrucciones Generales del Programa GlobalEPD 3ª revisión 09-10 2023

[3] Rule UNE-EN ISO 14025:2010 Etiquetas ambientales. Declaraciones ambientales tipo III. Principios y procedimientos (ISO 14025:2006).

[4] Standard Rule UNE-EN 15804:2012+A2:2020 Sustainability in construction. Environmental product declarations. Basic product category rules for construction products

[5] Rule UNE-EN ISO 14040 Standard. Environmental Management. Life cycle analysis. Principles and frame of reference. 2006.

[6] Rule UNE-EN ISO 14044 Standard. Environmental Management. Life cycle analysis. Requirements and guidelines. 2006

[7] UNE-EN 16757 – Sustainability of construction works – Environmental product declarations – Product Category Rules for concrete and concrete elements.

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