ENVIRONMENTAL PRODUCT DECLARATION

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

PROYAL® XXI

Version 02
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Validity: 5 years
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The International System of EPDs®
Program Operator: EPD International AB
Registration Number:
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Saint-Gobain Placo

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

General information

Program Information

PROGRAM:	The International EPD® System
ADDRESS:	EPD International AB - Box 210 60 - SE-100 31 Stockholm - Sweden
WEBSITE:	www.environdec.com
EMAIL:	info@environdec.com

PCR Information

Product Category Rules (PCR)

CEN standard EN 15804:2012+A2:2019/AC:2021 as the Core Product Category Rules (PCR)

Product category rules (PCR): PCR 2019:14 Construction Products, version 2.0
Complementary PCR: (c-PCR-031), 2024-08-06. c-PCR Gypsum-based construction products

PCR review was conducted by: The Technical Committee of the International EPD® System See www.environdec.com for a list of members.
Chairs of the PCR review: Rob Rouwette (chair), Noa Meron (co-chair).

Verification

External and independent ('third-party') verification of the declaration and data, according to ISO 14025:2006, via
EPD verification through:
☒ Individual EPD verification without a pre-verified LCA/EPD tool
☐ Individual EPD verification with a pre-verified LCA/EPD tool
☐ EPD process certification* without a pre-verified LCA/EPD tool
☐ EPD process certification* with a pre-verified LCA/EPD tool
☐ Fully pre-verified EPD tool

Independent third-party verification of the declaration and data, according to ISO 14025:2006:
☒ Verification of EPD by an individual verifier
External verifier: Marcel Gomez Environmental Consulting; Telephone: +34 630 64 35 93;
e-mail: info@marcelgomez.com
Approved by: The International EPD© System

Procedure for follow-up of data during EPD validity involves third part verifier: ☐ Yes ☒ No

Ownership and limitations on use of EPD

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit version number) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterization factors); and be valid at the time of comparison.

Information about EPD owner

Address and contact information of the EPD owner: Saint-Gobain Placo (hereinafter Placo®). Príncipe de Vergara 132, 8ª planta - 28002 Madrid.
Description of the organization of the EPD owner: manufacture of plaster and Plasterboard (PYL).
Management System Related Certification: The product has been manufactured in plants with a management system certified in accordance with ISO 14001, ISO 50001, ISO 9001, and ISO 45001.
LCA practitioner: Silvia Bailo (silvia.bailo@saint-gobain.com) and Sandra Perez-Jimenez (sandra.perez-jimenez@saint-gobain.com)
Communication: The intended use of this EPD is for B2B communication.

Product Information

Product Name: PROYAL® XXI
Visual representation of the product:

UN CPC CODE: 37530 Articles of gypsum or gypsum-based composition

Manufacturing sites:

- Fábrica de San Martín Polvo, Ctra. Pinto a San Martín Km 9.2 (M-506 Km 38) - 28330 San Martín de la Vega (Madrid).
- Gelsa Factory, Ctra. Ventas de Santa Lucía, Km 12,7 - 50786 Gelsa de Ebro (Zaragoza).
- Fábrica de Soneja, Ctra. Sagunto-Burgos, Km 24 - 12480 Soneja (Castellón).
- Fábrica de Morón, Ctra. de Pruna, Km 2 - 41530 Morón de la Frontera (Sevilla).

Product Description

PROYAL® XXI is a product lightened with expanded perlite, prepared with gypsum base and specially formulated to be applied with a spraying machine for the execution of wall and ceiling trims. It maximizes the plasterer's performance and ease of application in its aspects of projection, screeding, cutting, and subsequent plastering.

It provides excellent acoustic and thermal insulation, increasing the comfort and habitability of the home.

It is used in interior trims, on horizontal and vertical walls.

For more information: https://www.placo.es/

Technical data/physical characteristics:

Parameter	Value / Description
EN Classification	UNE-EN 13279 – Gypsum-based construction gypsum and binders. Type B4
Reaction to fire	A1

Application	Value / Description
Intended use and key functionalities	Interior cladding of vertical and horizontal walls by means of mechanical projection. Smooth finish to receive paint, wallpaper or tiling.
Expected influence on the operational aspects and impact of the building or other construction work	Improves thermal and acoustic insulation. Contributes to the hygrothermal regulation of the indoor environment. Euroclass A1 classification (does not contribute to fire).
Restrictions to a type of construction or building	Not suitable for areas with permanent humidity or direct exposure to water. Indoor use only.
Lifespan	50 years

Content declaration

Description of the main components and/or materials:

Quantity per 1 declared unit: 1kg of PROYAL® XXI dry powder to make uneven surfaces even, from 5 to 20mm thickness.

Product components	Mass (kg)	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material, kg C/product or declared unit
Gypsum	0.8 – 0.9	0	0	0
Other additives	0.1 – 0.2	0	0.1	1.22E-03
Total	**1**	**0**	**0.1**	**1.22E-03**

Packaging materials	Mass (kg)	Mass-% (versus the product)	Biogenic material104, kg C/product or declared unit
Wood	0.02	2	7.97E-03
Bags	0.004	0.4	1.47E-03
Plastic	0.0006	0.06	0
Total	**0.025**	**2.46**	**9.44E-03**

Hazardous substances

At the date of issue of this declaration, there is no “Substance of Very High Concern” (SVHC) in concentration above 0.1% by weight, and neither do their packaging, following the European REACH regulation (Registration, Evaluation, Authorization and Restriction of Chemicals).

LCA information

TYPE OF EPD	Cradle to grave and module D
DECLARED UNIT	1kg of PROYAL® XXI dry powder to make uneven surfaces even, from 5 to 20mm thickness.
CONVERSION FACTOR TO MASS	Not applicable
SYSTEM BOUNDARIES	Cradle to grave and module D
REFERENCE SERVICE LIFE (RSL)	The Reference Service Life (RSL) of the Gypsum product is 50 years. This 50-year value is the amount of time that we recommend our products last for without refurbishment and corresponds to standard building design life.
CUT-OFF RULES	All data is available, no cut-off rules has been applied. In the case that there is not enough information, the process energy and materials representing less than 1% of the whole energy and mass used can be excluded (if they do not cause significant impacts). The addition of all the inputs and outputs excluded cannot be bigger than the 5% of the whole mass and energy used, as well of the emissions to environment occurred. Flows related to human activities such as employee transport are excluded. The construction of plants, production of machines and transportation systems are excluded since the related flows are supposed to be negligible compared to the production of the building product when compared at these systems lifetime level.
ALLOCATIONS	Allocation has been avoided when possible and when not possible a mass allocation has been applied. The polluter pays and the modularity principles as well have been followed.
DATA QUALITY ASSESSMENT	Data quality of primary and secondary data had been judged by its precision (measured, calculated, or estimated), completeness (e.g., unreported emissions), consistency (degree of uniformity of the methodology applied), and representativeness (geographical, technological, and temporal).
GEOGRAPHICAL COVERAGE AND TIME PERIOD	Scope: Spain and Portugal The data is collected from 4 production centers located in Spain: San Martín de la Vega (Madrid), Gelsa (Zaragoza), Soneja (Castellón) and Morón de la Frontera (Sevilla). Data collected for the year 2023
BACKGROUND DATA SOURCE	Databases from Sphera CUP2024.2 and ecoinvent v.3.10 EF Package 3.1
SOFTWARE	Sphera LCA for experts 10

Data quality declaration

Process	Source type	Source	Reference year	Data category	A1-A3 GWP-GHG [kg CO2 eq.]
Manufacturing Process					
Thermal energy	Database	Sphera 2024.2	<5 years old	Primary data	61,3%
Electricity	Database	Sphera 2024.2 /ecoinvent 3.10	<5 years old	Primary data	0,2%
RMs from EPD					
EPD specific RM1	EPD	EPD number	EPD publication year	Primary data, secondary data	0%
EPD specific RM2	EPD	EPD number	EPD publication year	Primary data, secondary data	0%
Transportation (only if specific data collected)					
Transport of RM Product	Database	Sphera 2024.2 /ecoinvent 3.10	<5 years old	Secondary data	6%
Transport of RM Packaging	Database	Sphera 2024.2 /ecoinvent 3.10	<5 years old	Secondary data	0%
Product					
Product - RM on demand1	EPD/Database	EPD number / Sphera 2024.2 /ecoinvent 3.10	<5 years old/EPD publication year	Primary data, secondary data	0%
Product - RM on demand2	EPD/Database	EPD number / Sphera 2024.2 /ecoinvent 3.10	<5 years old/EPD publication year	Primary data, secondary data	0%
Product - RM on demand3	EPD/Database	EPD number / Sphera 2024.2 /ecoinvent 3.10	<5 years old/EPD publication year	Primary data, secondary data	0%
Packaging					
Pack - RM on demand1	EPD/Database	EPD number / Sphera 2024.2 /ecoinvent 3.10	<5 years old/EPD publication year	Primary data, secondary data	0%
Pack - RM on demand2	EPD/Database	EPD number / Sphera 2024.2 /ecoinvent 3.10	<5 years old/EPD publication year	Primary data, secondary data	0%
Pack - RM on demand3	EPD/Database	EPD number / Sphera 2024.2 /ecoinvent 3.10	<5 years old/EPD publication year	Primary data, secondary data	0%
Background datasets in A1-A3					
Other processes	Database	Sphera 2024.2 /ecoinvent 3.10	<5 years old	Secondary data	0%
				Total share of primary data	68%

A1-A3 GWP-GEI	1.14E-01

Description of system boundaries

System boundaries (X=included. MND=module not declared)

	PRODUCT STAGE			CONSTRUCTION STAGE		USE STAGE						END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY
	Raw material supply	Transport	Manufacturing	Transport	Construction-Installation process	Raw material supply	Transport	Manufacturing	Transport	Construction-Installation process	Raw material supply	Transport	Manufacturing	Transport	Construction-Installation process	Raw material supply	Transport
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Declared Modules	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Geography	EU	EU	SP	SP-PT	SP-PT	SP-PT	SP-PT	SP-PT	SP-PT	SP-PT	SP-PT	SP-PT	SP-PT	SP-PT	SP-PT	SP-PT	SP-PT

Life cycle stages

A1-A3. Product stage

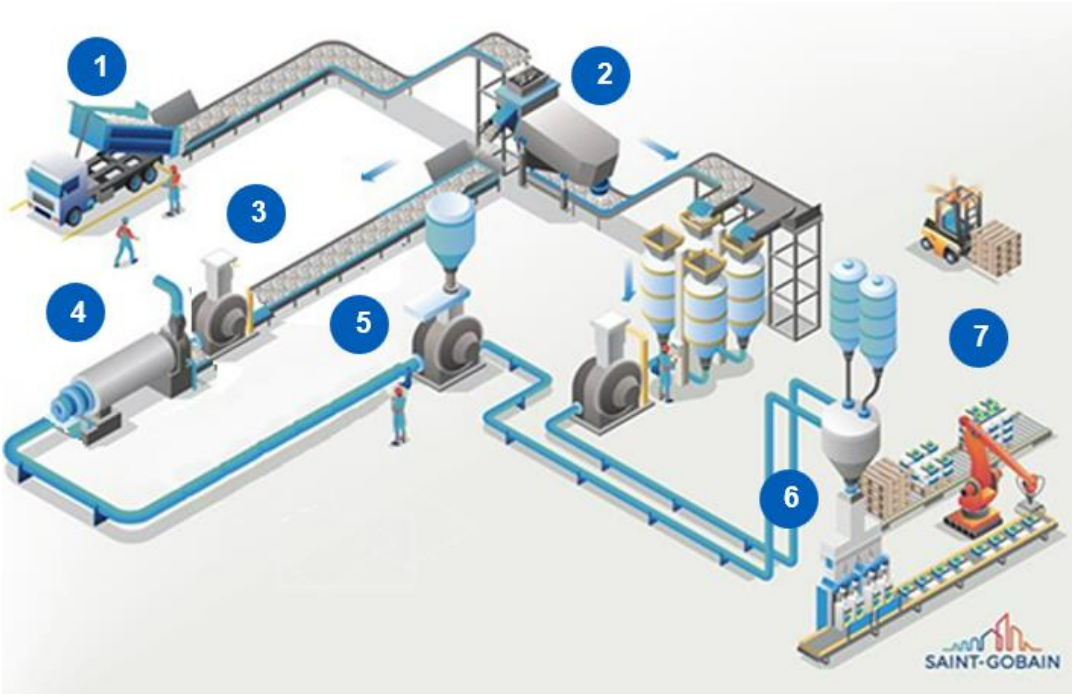
The product stage of plaster products is subdivided into 3 modules A1, A2 and A3 respectively “raw material supply”, “transport to manufacturer” and “manufacturing”.

A1. Raw materials supply
This module includes the extraction and transformation of raw materials.

A2. Transport to the manufacturer
This module includes the transportation of raw materials and packaging to the manufacturing site. The modelling includes road, boat and/or train transportations.

A3. Manufacturing
This module includes the manufacture of products and the manufacture of packaging. The production of packaging material is considered at this stage. The processing of any waste arising from this stage is also included.

Manufacturing process flow diagram



1. **Mineral gypsum transport**

   Mineral gypsum extracted in the quarry is transported by truck to the processing plant.

2. **Screening and separation of fines**

   The material is subjected to a screening process to separate the fine particles from the gypsum, thus optimizing the subsequent stages.

3. **Primary crushing**

   Gypsum is crushed to reduce its granulometry, facilitating its handling and thermal processing.

4. **Calcination in a Beta oven**

   The crushed material is placed in a fluidized bed furnace (Beta furnace), where calcination takes place. This process transforms natural gypsum **(**dihydrate) into Beta gypsum (hemihydrate), removing some of the water content.

5. **Final Crushing and Screening**

   The calcined gypsum is crushed again and screened to obtain the desired grain size, according to the specifications of the final product.

6. **Mixing with additives**

   Specific additives and pigments are incorporated, and a homogeneous mixture is made to obtain a formulation adapted to the needs of the customer or application.

7. **Packaging and distribution**

   The final product is packaged and ready for storage or distribution to the customer.

A4-A5. Construction process stage

The construction process is divided into 2 modules: A4, Transport to the building site and A5, Installation in the building.

A4. Transport to the building site

This module includes transport from the production gate to the building site. Transport is calculated based on a scenario with the parameters described in the following table.

Parameter	Value / Description
Fuel type and consumption of vehicle or vehicle type used for transport e.g., long-distance truck, boat, etc.	Cargo truck, maximum load weight of 27 t, actual load of 24 t and consumption of 0.38 liters per km
Distance	359 km by truck; 70 km by boat
Capacity utilisation (including empty returns)	100% (30% empty returns)
Bulk density of transported products*	800 - 900 kg/m3
Volume capacity utilisation factor	1 (default)

A5. Installation in the building

This module includes: the installation of the product, the surplus of raw materials and packaging (cradle to gate) to compensate for the loss of product during the installation, the transport and management of packaging and product waste.

The amount of PROYAL® XXI dry powder needed to cover 1 m2 to 1 cm thick is 8 to 9 kg, with a recommended water/powder ratio of 14 kg water / 20 kg dry powder.

Parameter	Value / Description
Ancillary materials for installation (specified by materials)	None
Water for on-site mixing of jointing compound	0.63 litres/kg
Other resource use	None
Electricity for on-site mixing	0.019 MJ/kg
Scrap rate at installation	100% product 100% plastic and paper
Wastage of materials on the building site before waste processing, generated by the product's installation (specified by type)	Plaster: 0.05kg/kg Wood: 0.02kg/kg Plastic: 0.0006kg/kg Bags: 0.004 kg/kg
Transport of packaging waste	Landfill: 80 km
Output materials (specified by type) as results of waste processing at the building site e.g., of collection for recycling, for energy recovering, disposal (specified by route)	Gypsum: 0.05kg/kg to landfill Wood: 0.02 kg/kg to reuse Plastic: 0.0006kg/kg to landfill Bags: 0.004 kg/kg to landfill
Direct emissions to ambient air, soil, and water	None

B1-B7. Use stage (excluding potential savings)

The use stage is divided into the following modules:

- **B1:** Use
- **B2:** Maintenance
- **B3:** Repair
- **B4:** Replacement
- **B5:** Refurbishment
- **B6:** Operational energy use
- **B7:** Operational water use

The product has a reference service life of 50 years. This assumes that the product will last in situ with no requirements for maintenance, repair, replacement, or refurbishment throughout this period. Therefore, it has no impact at this stage.

C1-C4. End of Life Stage

This stage includes the next modules:

- **C1: Deconstruction, demolition.** The de-construction and/or dismantling of the product take part of the demolition of entire building. The energy considered for demolition is 0.04 MJ/m².
- **C2: Transport to waste processing**
- **C3: Waste processing for reuse, recovery and/or recycling**
- **C4: Waste disposal**, including physical pre-treatment and site management.

Description of the scenarios and additional technical information for the end of life:

Parameter	Value / Description
Collection process specified by type	100% gypsum to landfill, collected and mixed with the rest of the construction waste
Recovery system specified by type	0 kg recycled
Disposal specified by type	1 kg to landfill
Assumptions for scenario development (e.g. transportation)	The waste will be transported by truck with a payload of 24 t, using diesel as fuel consuming 38 liters per 100 km Transport distance to landfill: 80 km

D. Reuse/recovery/recycling potential

In the module D is declared the environmental benefits and loads from reusable products, recyclable materials, or energy recovery. Module D considers:

- Inputs of secondary materials: recycled raw materials for product and packaging (pre- and post-consumer),
- Outputs of secondary materials: product and/or packaging sent to recycling,
- Exported energy (electric or thermal): product and/or packaging sent to incineration with energy recovery

Environmental performance

As specified in EN 15804:2012+A2:2019/AC:2021 and the Product-Category Rules, the environmental impacts are declared and reported using the baseline characterization factors based on EF 3.1. Raw materials and energy consumption, as well as transport distances have been taken directly from the manufacturing plant.

The 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.
The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3).

Disclaimer 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 following indicators:

- Resource use, mineral and metals [kg Sb eq.]
- Resource use, energy carriers [MJ]
- Water deprivation potential [m^3 world equiv.]
- Land use [Pt]
- Human toxicity (cancer) [CTUh]
- Human toxicity(noncancer) [CTUh]
- Ecotoxicity (freshwater [CTUe]

Disclaimer 2: The impact category Ionizing radiation, human health [kBq U235 eq.] 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 material is also not measured by this indicator.

Disclaimer 3: The assumptions for the modules are in accordance with the project report (LCA study).

The following non-mandatory additional environmental indicators are not declared:

- Ecotoxicity freshwater [CTUe]
- Particulate Matter emissions [Disease incidence]
- Cancer human health effects [CTUh]
- Ionizing radiation - human health [kBq U235 eq.]
- Non-cancer human health effects [CTUh]
- Land Use [Pt].

The results refer to a declared unit of 1kg of PROYAL® XXI dry powder to make uneven surfaces even, from 5 to 20mm thickness. The following results refer to a single product manufactured in 4 production sites.

Environmental impacts

Environmental indicators	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE LIFE CYCLE
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Climate Change [kg CO2 eq.]	7.59E-02	3.39E-02	4.65E-02	0	0	0	0	0	0	0	5.91E-03	8.25E-03	0	9.65E-03	0
Climate Change (fossil) [kg CO2 eq.]	1.15E-01	3.33E-02	1.13E-02	0	0	0	0	0	0	0	5.91E-03	8.09E-03	0	9.11E-03	0
Climate Change (biogenic) [kg CO2 eq.]	-3.89E-02	8.96E-05	3.52E-02	0	0	0	0	0	0	0	4.77E-07	2.23E-05	0	5.24E-04	0
Climate Change (land use change) [kg CO2 eq.]	2.12E-04	5.32E-04	2.49E-05	0	0	0	0	0	0	0	5.13E-07	1.34E-04	0	1.33E-05	0
Ozone depletion [kg CFC-11 eq.]	6.29E-10	3.28E-15	7.10E-11	0	0	0	0	0	0	0	9.04E-11	8.03E-16	0	2.18E-10	0
Acidification terrestrial and freshwater [Mole of H+ eq.]	2.45E-04	7.40E-05	3.76E-05	0	0	0	0	0	0	0	5.33E-05	9.09E-06	0	6.46E-05	0
Eutrophication freshwater [kg P eq.]	1.65E-06	1.36E-07	3.07E-07	0	0	0	0	0	0	0	2.08E-08	3.40E-08	0	7.77E-08	0
Eutrophication marine [kg N eq.]	6.57E-05	2.10E-05	8.77E-06	0	0	0	0	0	0	0	2.48E-05	3.02E-06	0	2.32E-05	0
Eutrophication terrestrial [Mole of N eq.]	6.90E-04	2.45E-04	9.35E-05	0	0	0	0	0	0	0	2.71E-04	3.68E-05	0	2.54E-04	0
Photochemical ozone formation - human health [kg NMVOC eq.]	2.00E-04	5.94E-05	2.84E-05	0	0	0	0	0	0	0	8.08E-05	8.49E-06	0	8.85E-05	0
Resource use, mineral and metals [kg Sb eq.][1]	2.39E-07	2.72E-09	1.67E-08	0	0	0	0	0	0	0	2.11E-09	6.78E-10	0	1.19E-08	0
Resource use, energy carriers [MJ][1]	1.66E+00	4.27E-01	1.70E-01	0	0	0	0	0	0	0	7.66E-02	1.04E-01	0	2.06E-01	0
Water deprivation potential [m³ world equiv.][1]	1.95E-02	4.74E-04	3.35E-02	0	0	0	0	0	0	0	2.38E-04	1.19E-04	0	8.45E-03	0

[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

Resource Use

Resources Use indicators	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE LIFE CYCLE
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Use of renewable primary energy (PERE) [MJ][2]	3.70E-01	3.50E-02	2.96E-01	0	0	0	0	0	0	0	4.75E-04	8.79E-03	0	5.35E-03	0
Primary energy resources used as raw materials (PERM) [MJ] [2]	3.91E-01	0	-2.50E-01	0	0	0	0	0	0	0	0	0	0	0	0
Total use of renewable primary energy resources (PERT) [MJ] [2]	7.61E-01	3.50E-02	4.58E-02	0	0	0	0	0	0	0	4.75E-04	8.79E-03	0	5.35E-03	0
Use of non-renewable primary energy (PENRE) [MJ] [2]	1.61E+00	4.27E-01	1.66E-01	0	0	0	0	0	0	0	7.66E-02	1.04E-01	0	2.06E-01	0
Non-renewable primary energy resources used as raw materials (PENRM) [MJ] [2]	5.23E-02	0	2.62E-03	0	0	0	0	0	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources (PENRT) [MJ] [2]	1.66E+00	4.27E-01	1.68E-01	0	0	0	0	0	0	0	7.66E-02	1.04E-01	0	2.06E-01	0
Use of secondary material (SM) [kg]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Use of renewable secondary fuels (RSF) [MJ]	1.27E-25	0	6.36E-27	0	0	0	0	0	0	0	0	0	0	0	0
Use of non-renewable secondary fuels (NRSF) [MJ]	1.49E-24	0	7.47E-26	0	0	0	0	0	0	0	0	0	0	0	0
Use of net fresh water (FW) [m3]	4.79E-04	3.93E-05	7.81E-04	0	0	0	0	0	0	0	5.53E-06	9.87E-06	0	1.98E-04	0

[2] From EPD International Construction Product PCR 2.0 (Annex 3). The option B was reatined to calculate the primary energy use indicators.

Waste Category & Output flows

	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE LIFE CYCLE
Waste Category & Output flows	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Hazardous waste disposed (HWD) [kg]	1.01E-03	1.38E-11	2.38E-04	0	0	0	0	0	0	0	6.70E-05	3.36E-12	0	1.38E-04	0
Non-hazardous waste disposed (NHWD) [kg]	1.84E-02	6.56E-05	7.08E-02	0	0	0	0	0	0	0	5.17E-04	1.62E-05	0	1.31E+00	0
Radioactive waste disposed (RWD) [kg]	6.99E-06	5.50E-07	5.78E-07	0	0	0	0	0	0	0	8.50E-09	1.34E-07	0	2.46E-07	0
Components for re-use (CRU) [kg]	0	0	1.79E-02	0	0	0	0	0	0	0	0	0	0	0	0
Materials for Recycling (MFR) [kg]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for Energy Recovery (MER) [kg]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported electrical energy (EEE) [MJ]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported thermal energy (EET) [MJ]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Additional indicators from EN 15804

Environmental indicators	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE LIFE CYCLE
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
GWP-GHG [kg CO2 eq.][3]	1.14E-01	3.37E-02	1.20E-02	0	0	0	0	0	0	0	5.87E-03	8.19E-03	0	9.01E-03	0

Biogenic Carbon Content Information

Biogenic carbon content	PRODUCT STAGE
	A1 / A2 / A3
Biogenic carbon content in the product [kg]	1.22E-03
Biogenic carbon content in packaging [kg]	9.45E-03

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO2.

The product contains biogenic carbon due to some of the additives used. In terms of packaging, biogenic carbon is quantified due to the production of wooden pallets and bags.

[3] The indicator includes all greenhouse gases included in the total GWP, but excludes the absorption and emissions of biogenic carbon dioxide and the biogenic carbon stored in the product. Therefore, this indicator is almost the same as the GWP indicator originally defined in EN 15804:2012+A1:2013.

Declaration of variation

This EPD covers a similar product manufactured at different sites. The variation in the GWP-GHG indicator between sites ranges from -4% to +5%.

Additional Environmental Information:

Electricity Information

The factories based in San Martín de la Vega (Madrid), Gelsa (Zaragoza), Soneja (Castellón) and Morón de la Frontera (Sevilla) use electricity with a Guarantee of Origin (GO) certificate.

Therefore, the electricity mix considered for the manufacture of the product under study is modelled according to the electricity mix described in the Guarantee of Origin certificate. The amount of electricity purchased with GO's covers 100% of the electricity consumption at the manufacturing site.

Type of information	Description
Location	Representative of the guarantee of origin acquired by Saint-Gobain
Share of electricity covered by Guarantee of Origin	100% of energy consumption is covered by GO
Dataset version	Sphera CUP2024.2 Ecoinvent 3.10 (Medium Voltage)
Type of dataset	Cradle to door of the Sphera and ecoinvent databases
Source of electricity mix	Certificate of Redemptions of Guarantee of Origin 2023
GHG-GWP CO_2 eq.	0.01 kg CO2 eq/kWh

A DAP is valid for 5 years. Therefore, the GO will be continuously extended so that it is valid for the entire term of the DAP. If it is not extended, the DAP will be updated.

Version History

This document corresponds to version 2 of the DAP PROYAL® XXI.

The differences from the previous version are as follows:

- EN 15804 Standard (EN 15804:2012+A1:2014 in version 1)
- PCR (PCR 2012-01 v2.3 in version 1)
- Calculation software (SimaPro 9.0.0.30 in version 1)
- Database (Ecoinvent 3.5. in version 1)
- Electric mix (Spain 2018 in version 1)
- Four production sites (five sites in version 1)

Abbreviations

AIB	Association of issuing bodies
DU	Declared unit
EPD	Environmental Product Declaration
eq.	equivalents
FU	Functional unit
g	gram
GJ	Giga Joules (as Net Calorific Value)
IOBC	Instantaneous Oxidation of Biogenic Carbon
EF	Environmental Footprint
GO's	Guaranty of origin
kg	kilogram
kWh	kilowatt-hour
L	liter
LCA	Life Cycle Assessment
LCI	Life Cycle Inventory Analysis
LCIA	Life Cycle Impact Assessment
MJ	Mega Joules (as Net Calorific Value)
PCR	Product Category Rules
RSL	Reference Service Life (in years)
ton	metric ton

References

1. ISO 14040:2006 Environmental Management-Life Cycle Assessment-Principles and framework.
2. ISO 14044:2006 Environmental Management-Life Cycle Assessment-Requirements and guidelines.
3. EN 15804:2012+A2:2019/AC:2021 - Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
4. EPD International. General Program Instructions (GPI) for the International EPD® System (version 5.0.1) www.environdec.com.
5. The International EPD System PCR 2019:14 Construction products and Construction services. Version 2.0.0
6. EN 15941 Sustainability of construction works - Data quality for environmental assessment of products and construction work - Selection and use of data
7. c-PCR Gypsum-based construction products (EN 17328) (c-PCR-031 version: 2024-08-06)
8. European Chemical Agency, Candidate List of substances of very high concern for Authorization. https://echa.europa.eu/candidate-list-table
9. Name of the LCA report: DAPs Gypsum and Pastes 2025