SAINT-GOBAIN

ENVIRONMENTAL PRODUCT DECLARATION

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

CLIMALIT PLUS®

4-16-44.1

4-16-44.1Si

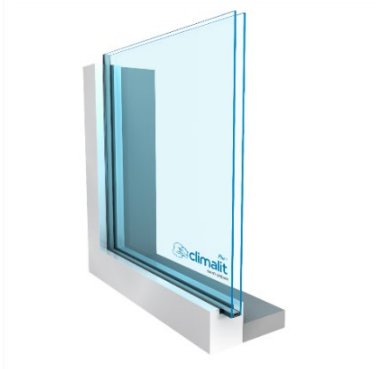
Version 2
Version date: 2026.05.05
Validity: 5 years
Validity date: 2031.05.04
Scope of the EPD®: Spain and Portugal

EPD of multiple products

EPD INTERNATIONAL EPD SYSTEM

Programme: The International EPD® System, www.environdec.com
Programme operator: EPD International AB.
Type of EPD: EPD of multiple products from a company.
EPD Registration number: **0016333:002**

Plus® climalit SAINT-GOBAIN



ECO PLATFORM EPD VERIFIED

An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.environdec.com.

SAINT-GOBAIN GLASS

GENERAL INFORMATION

PROGRAMME:	The International EPD® System
ADDRESS:	EPD International AB - Box 210 60 - SE-100 31 Stockholm - Sweden
WEBSITE:	www.environdec.com
E-MAIL:	support@environdec.com

Product category Rules (PCR)
CEN standard EN 15804:2012 + A2:2019/AC:2021 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): PCR 2019:14 Construction Products, version 2.0.1.
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). The review panel may be contacted via the Secretariat www.environdec.com/contact.
c-PCR: c-PCR-009 Flat glass products used in buildings and other construction works (EN17074:2019).

Third-party Verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:
☒ Individual EPD verification without a pre-verified LCA/EPD tool
Third party verifier: Dr. Patxi Hernandez AUREA Consulting Ireland patxi@aureaconsult.com Tel. +34-653749027
Approved by: The International EPD System
Procedure for follow-up of data during EPD validity involves third part verifier: ☐ Yes ☒ No

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

EPDs within the same product category but registered in different EPD programs, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same 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 equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterization factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

INFORMATION ABOUT EPD OWNER

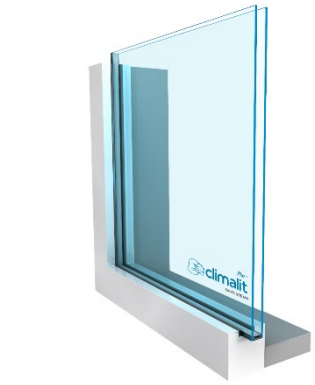
Owner of the EPD: Saint-Gobain Glass España
Address: C/ Príncipe de Vergara 132, 28002 Madrid.
Contact: fernando.delarubia@saint-gobain.com; mariluz.jimeno@saint-gobain.com
Address and contact information of the LCA practitioner commissioned by the EPD owner:

Serni Morera (Marcel Gómez Consultoría Ambiental), Fernando de la Rubia (Saint-Gobain) and Mariluz Jimeno (Saint-Gobain).
Description of the organisation: Saint-Gobain Glass designs, manufactures and markets glass solutions for facades, windows, and interior design. The company is committed to building better for people and the planet by providing glass solutions that deliver both sustainability and high performance. Saint-Gobain Glass is part of Saint-Gobain, a worldwide leader in light and sustainable construction.
Product-related or management system-related certifications: ISO 9001:2015, ISO 14001:2015 and OHSAS 18001:2009 standards.

PRODUCT INFORMATION

Product name: CLIMALIT PLUS® 4-16-44.1 and 4-16-44.1Si

Visual representation of the product



UN CPC code: 371 Glass and glass products
Product description: This Environmental Product Declaration (EPD®) describes the environmental impacts of 1 m² of CLIMALIT PLUS® 4-16-44.1 and 4-16-44.1Si for an expected average service life of 30 years.

This EPD is the result of an average of twenty-eight glass processor sites from twenty-seven CLIMALIT® partners in Spain, that use as main product the flat glass PLANICLEAR® manufactured in Saint-Gobain Glass Production Plant in Avilés. The EPD declares the results for a multiple products, based on worst-case models results when it comes to multiple products, considering a weighted average of the production of the 28 factories.

CLIMALIT PLUS® is a high performing double-glazing unit, meant for building applications (facades, windows …). CLIMALIT PLUS® incorporate a low emissivity coating on one face, which gives it its high-performing thermal properties. It complies with European standard EN 1279-5.

Technical data/physical characteristics:

	CLIMALIT PLUS® 4-16-44.1	CLIMALIT PLUS® 4-16-44.1Si
Thickness (mm)	28	28
Visible parameters (CIE015:2018)		
Light transmittance (LT) %	71	71

External light reflection (RLE) (%)	14	14
Energetic parameters (EN410:2011)		
Energy transmittance (ET) %	34	34
Energy absorbance (EA) %	26	26
Solar factor g	0,38	0,38

Table 1: Performance Data of CLIMALIT PLUS® with PLANISTAR®

The performance data are given according to the EN 410-2011 standard.

Name of manufacturers and location of production sites: The Climalit® partners glass processors included in this analysis are:

- Cvglass S.L (Granada);
- Vitral Vidre SLU (Lleida);
- Acristalamientos Vinuesa, S.A. (Soria);
- Glassolutions España (Pontevedra);
- Cristalerías Ramos SLU (two manufacturing sites in Madrid);
- Hermanos Sánchez Pajares S.L (Badajoz);
- Crimacri S.A (Madrid);
- Cristalerías Pedro García S.L (Madrid);
- Innovación Vidrio Técnico S.L (Alava);
- Cristalería Padronesa S.L (A Coruña);
- Crisabex S.L (Extremadura);
- Cristalería Jomar S.L (Zaragoza);
- Cristal Norte S.L (Gijón);
- F.D.A Domingo Barroso S.L (Salamanca);
- Cristalería Telde S.L (Las Palmas de Gran Canaria);
- Cerviglas S.L.U (Valencia);
- Hermanos Orozco Cristalerías S.L (Toledo);
- Cristalería Ramos y Ramos S.L (Ourense);
- Vidrialba Soluciones del Vidrio técnico S.L (Albacete);
- Metalvidre 2011 S.L (Valencia);
- Cridesa S.A.U (Alicante);
- García Industrias del Vidrio S.L (Toledo);
- Cristalería Ibérica S.A (Madrid);
- Vidrios Cobo S.A (Cantabria);
- Fuencristal S.L (Jaen);
- Vidres Mallorca S.L (Mallorca);
- Narvaez Aislamientos y seguridad S.L (Madrid);

CONTENT DECLARATION

The mass of 1 m² of CLIMALIT PLUS® 4-16-44.1 and 4-16-44.1Si is of 31,23 kg.

Description of the main components and/or materials for 1 m² of CLIMALIT PLUS®

PARAMETER	4-16-44.1Si	4-16-44.1	
Glass	96,06 %	96,06%	CAS number 65997-17-3, EINECS number 266-046-0

Coating	<0,01%	<0,01%	Metal oxides, which bring all the thermal properties to the glazing
Butyl sealant (Polymer)	0,02%	0,02%	Polymer
Sealant (polyurethane or polysulfide or silicone)	1,16%	1,17%	Polymers
Spacer bar (aluminium or plastic composite, called warm-edge)	0,65%	0,65%	Article
Desiccant	<0,01 %	<0,01%	CAS number 1318-02-1
Gas	0,083%	0,083%	Argon
PVB interlayer	2,11%	1,61%	CAS number 63148-65-2 EINECS number 272-808-3
Thickness	28 mm		
Packaging for the transportation and distribution – **Rack**	7,81%		
Film	0,02%		
Seal tape	<0,01%		
Spacer corks	<0,01%		
Cardboard	0,05%		
Product used for the Installation	None		According to PCR EN 17074, none ancillary materials considered

No substances of very high concern (SVHC), as defined under the REACH Regulation, are present in the product or its packaging in concentrations above 0,1% by weight.

Description of the main product components and/or materials:

All raw materials contributing more than 5% to any environmental impact are listed in the following table.

Product content	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass % of product	Biogenic material weight- and kg C/kg(%)
Glass	20-35	1 %	0 %	0
Anodized aluminium	0,15-0,25	0 %	0 %	0
Polysulfide	0,20-0,45	0 %	0 %	0
Sum	**100%**	**1 %**	**0 %**	**0**
Packaging materials	**Mass, kg**	**Mass % (versus the product)**	**Biogenic material kg C/kg**	
Cast iron	2,44	7,81 %	0	
Low density polyethylene	0,0076	0,02 %	0	
Aluminium/PE (sealing tape)	0,0026	<0,01 %	0	
Cork	0,0024	<0,01 %	0,5	
Cardboard	0,0167	0,05 %	0,5	

LCA INFORMATION

TYPE OF EPD	Cradle to grave and module D

FUNCTIONAL UNIT	1 m² of CLIMALIT PLUS® with a light transmittance of maximum 71% for an expected average service life of 30 years.
SYSTEM BOUNDARIES	Cradle to grave and module D Mandatory stages = A1-A3; A4-A5; B1-B7; C1-C4 and D
REFERENCE SERVICE LIFE (RSL)	According to PCR EN 17074:2019, the reference service life is 30 years
CUT-OFF RULES	All significant parameters shall be included. Life Cycle Inventory data for a minimum of 99% of total inflows to the upstream and core module shall be included. Flows related to human activities such as employee transport are excluded. Transportation in-site is excluded. The energy used for the installation of 1m² of glass is included in the cut-off-rules. Long-term emissions are excluded Infrastructure/capital goods are excluded
ALLOCATIONS	Allocations are done on mass basis (kg) The polluter pays and modularity principles have been followed
GEOGRAPHICAL COVERAGE AND TIME PERIOD	The information was established over the year 2024. The information collected comes from 28 manufacturing sites producing in Spain
BACKGROUND DATA SOURCE	Ecoinvent 3.11. The data are representative of the year 2024.
SOFTWARE	SimaPro 10.2.0.2

According to EN 15804+A2:2019/AC:2021, EPD of construction products may not be comparable if they do not comply with this standard. According to ISO 21930, EPD might not be comparable if they are from different programs.

LCA scope

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	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-recovery
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Geography	EU	EU	ES	ES-PT	ES-PT	ES-PT	ES-PT	ES-PT	ES-PT	ES-PT	ES-PT	ES-PT	ES-PT	ES-PT	ES-PT	ES-PT	ES-PT

Share of primary data	42,79% GWP- GHG
Variation products	<1%
Variation sites	39,2%

SHARE OF PRIMARY DATA

Process	Source Type	Source	Reference year	Data category	%
A1 Raw materials supply					
Flat glass	Specific EPD	EPD-IES-0000882:003	2022	Primary data	32,07
A2 Transport to the manufacturer					
Transportation (only if specific data collected)	Data base Specific data from manufacturers	ECOINVENT 3.11	2024	Primary data	6,70
A3 Manufacturing					
A3 Electricity consumption	Data base Specific data from manufacturers	ECOINVENT 3.11	2024	Primary data	4,00
A1-A3 GWP-GHG Total of primary data					**42,79**

The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data, to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories. The reported share of primary data is associated with uncertainty, as an EPD used as data source lack information on the share of primary data.

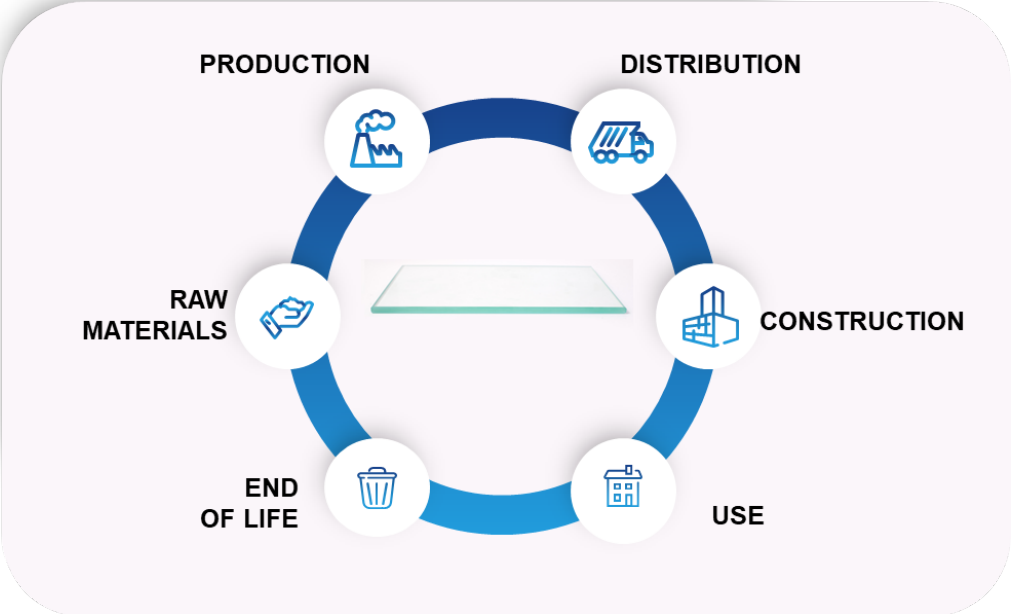
DATA QUALITY ASSESSMENT

The EPD covers reclaimed product Climalit Plus 4-16-4 from 28 factories described in PRODUCT INFORMATION which provided data for the period January-December 2024. The products are cleaned by hand using soap and water. The EPD covers transport to, and end-of-life in Spain and Portugal. Background data was sourced from the Ecoinvent 3.11 Database. No fair, poor or very poor data was found during the assessment of relevant data using in accordance with EN 15941.

We described in the ACV an estimate of the quality of the data used based on three aspects: temporal, technological, and geographical. To quantify the average of this quality, each material/process element during the product lifecycle is assigned the following scale: 1-very poor, 2-poor, 3-average, 4-good, and 5-very good in accordance with EN 15804.15804:2012+ A2:2019., Annex E.2.

The temporal, technological, and geographical aspects receive an average value of 4, 3,77, and 4,13 respectively, and an overall average of 3,97. Therefore, the data quality is considered good.

Life cycle stages



A1-A3, Product stage

Description of the stage:

For double glazing A1 to A3 represents the production cradle to gate. The product stage includes the extraction and processing of raw materials and energies, transport to the manufacturer, manufacturing, and processing of double glazing units.

Description of the stage: the product stage of double glazing is subdivided into 3 modules A1, A2 and A3 respectively “Raw material supply”, “Transport to the manufacturer” and “Manufacturing”.

Description of the scenarios and other additional technical information:

A1, Raw materials supply

This includes the extraction and processing of all raw materials and energy which occur upstream from the manufacturing process. Main input is flat glass PLANICLEAR manufactured at Saint Gobain Avilés plant.

A2, Transport to the manufacturer

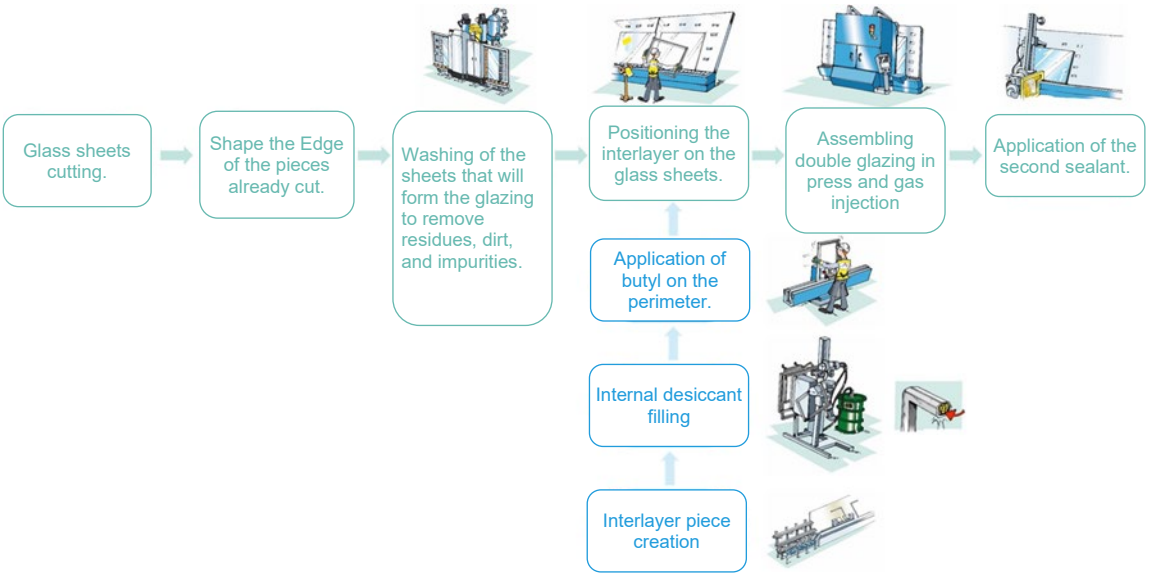
The raw materials are transported to the manufacturing site. The modelling includes road, boat and/or train transportation of each raw material.

A3, Manufacturing

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

Manufacturing process flow diagram

System diagram:
DOUBLE-GLAZING PRODUCTION
Glass sheets are received, washed and dried to remove all dirty particles. Two sheets are separated by an aluminum spacerbar or thermally insulating material. They are then sealed around the perimeter using organic seals, and the spacer bar is filled with desiccant to dry the air in the cavity. A secondary seal is then applied to hermetically seal the double-glazed unit.



The double glazing units are transported on dedicated racks, which are used many times. A scenario of 100 uses and after its deposition to an inert waste landfill has been considered.

A4-A5, Construction process stage

Description of the 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 on the basis of a scenario with the parameters described in the following table:

PARAMETER	VALUE
Fuel type and consumption of vehicle or vehicle type used for transport e.g. long distance truck, boat, etc.	Freight truck trailer within 16 and 32 t capacity, diesel consumption 38 liters for 100 km
Distance	152 km
Capacity utilisation (including empty returns)	100% of the capacity in volume 30 % of empty returns in mass
Bulk density of transported products*	2500 kg/m^3
Volume capacity utilisation factor	1

A5, Installation in the building:

The accompanying table quantifies the parameters for installing the product at the building site. All installation materials and their waste processing are included.

PARAMETER	VALUE/DESCRIPTION
Wastage of materials on the building site before waste processing, generated by the product's installation (specified by type)	According to PCR EN 17074, no waste is considered
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)	Packaging materials (film, sealing tape, cork, cardboard) 2,93E-02 kg/m^2 sent to landfill and Glass racks 2,44 kg/m^2 reused 100 times, however the proportional part of the final deposition to the landfill of the racks after its use is included.
Ancillary materials for installation (specified by materials)	According to PCR EN 17074, no ancillary materials considered
Other resource use	None
Quantitative description of energy type (regional mix) and consumption during the installation process	According to EN 15804+A2:2019/AC:2021, the energy needed during the installation is less than 0,1% of the total life cycle energy. It's included in the cut-off-rules.
Direct emissions to ambient air, soil and water	None

B1-B7, Use stage (excluding potential savings)

Description of the stage: 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

B2, Maintenance:

PARAMETER	VALUE
Maintenance process	Water and cleaning agent
Maintenance cycle	Annual average
Ancillary materials for maintenance (e.g. cleaning agent, specify materials)	Cleaning agent: 0,001 kg/m² of glass/year
Wastage material during maintenance (specify materials)	0 kg
Net fresh water consumption during maintenance	0,2 kg/m² of glass/year
Energy input during maintenance	None required during product lifetime

Description of the scenarios and additional technical information:
The product has a reference service life of 30 years. This assumes that the product will last in situ with no requirements for repair, replacement or refurbishment throughout this period. Therefore, it has no impact at this stage, except for maintenance.

According to PCR EN 17074, only the maintenance by cleaning glass with water and cleaning agent is included in this study.

C1-C4, End of Life Stage

Description of the stage: this stage includes the next modules:

- C1, Deconstruction, demolition
- C2, Transport to waste processing
- C3, Waste processing for reuse, recovery and/or recycling
- C4, Disposal

End of life scenario used in this study is:
100% of glass is landfilled and the distance to the landfill site considered is 80 km.

Description of the scenarios and additional technical information:

PARAMETER	CLIMALIT PLUS® 4-16-44.1Si
Thickness (mm)	28
Collection process specified by type (kg)	31,23
Recovery system specified by type (kg)	0
Disposal specified by type (kg)	31,23
Assumptions for scenario development (e.g. transportation)	80 km transport to landfill

D, Reuse/recovery/recycling potential

100% of glass wastes are landfilled.

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 from the Environmental Footprint available at the JRC web page, specifically the EF reference package 3.1.
Specific data has been supplied by the plant, and generic data come from Ecoinvent 3.11 database. Specific data for the flat glass PLANICLEAR® manufactured by the Saint-Gobain Avilés plant has also been used in the LCA model.

The estimated impact results are only relative statements which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins or risks.
All emissions to air, water, and soil, and all materials and energy used have been included.

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).

Raw materials and energy consumption, as well as transport distances have been taken directly from the manufacturing plant (Production data according 2024)

All result tables refer to a functional unit of 1 m² of CLIMALIT PLUS® and an expected average service life of 30 years.

All emissions to air, water, and soil, and all materials and energy used have been included.

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 experience with the following indicators:
- Resource use, mineral and metals [kg Sb eq.]
- Resource use, energy carriers [MJ]
- Water deprivation potential [m³ world equiv.]

Disclaimer 2: The following optional 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]

Disclaimer 3: It is recommended to not use the results of modules A1-A3 (A1-A5 for services) without considering the results of module C.

Mandatory impact category indicators according to EN 15804

Environmental indicators	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				REUSE, RECOVERY RECYCLING
	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	C4 Disposal	D Reuse, recovery, recycling
Climate Change [kg CO2 eq.]	4,90E+01	7,17E-01	9,22E-02	0	9,44E-02	0	0	0	0	0	1,16E-02	3,81E-01	0	8,16E-02	0
Climate Change (fossil) [kg CO2 eq.]	4,89E+01	7,17E-01	5,73E-02	0	8,66E-02	0	0	0	0	0	1,16E-02	3,81E-01	0	8,16E-02	0
Climate Change (biogenic) [kg CO2 eq.]	7,73E-02	2,25E-05	3,49E-02	0	1,79E-04	0	0	0	0	0	5,29E-07	1,20E-05	0	1,63E-05	0
Climate Change (land use change) [kg CO2 eq.]	8,29E-02	1,13E-05	9,10E-07	0	7,63E-03	0	0	0	0	0	4,79E-07	6,02E-06	0	5,00E-06	0
Ozone depletion [kg CFC-11 eq.]	1,39E-07	1,63E-08	1,30E-09	0	2,33E-09	0	0	0	0	0	1,77E-10	8,65E-09	0	1,25E-09	0
Acidification terrestrial and freshwater [Mole of H+ eq.]	2,68E-01	1,85E-03	1,49E-04	0	5,65E-04	0	0	0	0	0	1,08E-04	9,84E-04	0	7,39E-04	0
Eutrophication freshwater [kg P eq.]	2,59E-04	4,43E-07	3,58E-08	0	5,96E-06	0	0	0	0	0	1,10E-08	2,35E-07	0	7,85E-08	0
Eutrophication marine [kg N eq.]	6,18E-02	7,05E-04	5,68E-05	0	1,93E-04	0	0	0	0	0	5,07E-05	3,75E-04	0	3,48E-04	0
Eutrophication terrestrial [Mole of N eq.]	7,53E-01	7,71E-03	6,21E-04	0	1,27E-03	0	0	0	0	0	5,56E-04	4,10E-03	0	3,81E-03	0
Photochemical ozone formation - human health [kg NMVOC eq.]	1,72E-01	3,06E-03	2,46E-04	0	3,77E-04	0	0	0	0	0	1,66E-04	1,63E-03	0	1,14E-03	0
Resource use, mineral and metals [kg Sb eq.][1]	2,65E-05	1,87E-08	1,49E-09	0	2,97E-07	0	0	0	0	0	4,08E-10	9,93E-09	0	2,83E-09	0
Resource use, energy carriers [MJ][1]	6,62E+02	9,53E+00	7,61E-01	0	1,45E+00	0	0	0	0	0	1,52E-01	5,06E+00	0	1,07E+00	0
Water deprivation potential [m³ world equiv.][1]	8,17E+00	3,12E-03	2,50E-04	0	8,19E-02	0	0	0	0	0	1,14E-04	1,66E-03	0	8,02E-04	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

Resources Use

Resources Use indicators	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				D REUSE, RECOVERY, RECYCLING
	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]	1,27E+02	2,34E-02	3,30E-01	0	4,50E-01	0	0	0	0	0	3,27E-04	1,25E-02	0	2,56E-02	0
Renewable primary energy resources used as raw materials (PERM) [MJ]	3,28E-01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total use of renewable primary energy resources (PERT) [MJ]	1,27E+02	2,34E-02	3,30E-01	0	4,50E-01	0	0	0	0	0	3,27E-04	1,25E-02	0	2,56E-02	0
Use of non-renewable primary energy (PENRE) [MJ]	6,61E+02	9,53E+00	1,18E+00	0	1,46E+00	0	0	0	0	0	1,52E-01	5,06E+00	0	1,07E+00	0
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	4,18E-01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total use of non-renewable primary energy resources (PENRT) [MJ]	6,61E+02	9,53E+00	1,18E+00	0	1,46E+00	0	0	0	0	0	1,52E-01	5,06E+00	0	1,07E+00	0
Input of secondary material (SM) [kg]	2,90E+00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Use of renewable secondary fuels (RSF) [MJ]	3,61E-18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Use of non-renewable secondary fuels (NRSF) [MJ]	4,24E-17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Use of net fresh water (FW) [m3]	2,20E-01	1,85E-04	1,48E-05	0	2,68E-03	0	0	0	0	0	4,61E-06	9,81E-05	0	3,90E-05	0

Waste Category & Output flows

Waste indicators & Output Flows indicators	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				D REUSE, RECOVERY, RECYCLING
	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]	1,30E-02	6,34E-05	5,06E-06	0	2,31E-05	0	0	0	0	0	1,04E-06	3,37E-05	0	7,29E-06	0
Non-hazardous waste disposed (NHWD) [kg]	1,87E+00	3,21E-04	5,35E-02	0	1,59E-03	0	0	0	0	0	5,44E-06	1,70E-04	0	3,10E+01	0
Radioactive waste disposed (RWD) [kg]	2,88E-03	5,75E-07	4,59E-08	0	1,10E-06	0	0	0	0	0	7,10E-09	3,06E-07	0	8,17E-08	0
Components for re-use (CRU) [kg]	0	0	2,44E+00	0	0	0	0	0	0	0	0	0	0	0	0
Materials for Recycling (MFR) [kg]	7,86E+00	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 voluntary indicators from EN 15804 (according to ISO 21930:2017)

	PRODUCT STAGE	CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				REUSE, RECOVERY RECYCLING
Environmental indicators	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.][2]	4,90E+01	7,17E-01	5,73E-02	0	9,42E-02	0	0	0	0	0	1,16E-02	3,81E-01	0	8,16E-02	0

[2] The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Information on biogenic carbon content

		PRODUCT STAGE
Biogenic Carbon Content		**A1 / A2 / A3**
	Biogenic carbon content in product [kg]	0
	Biogenic carbon content in packaging [kg]	9,53E-03

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

There is no biogenic carbon in glass product. The biogenic carbon comes only from the packaging.

Additional information:

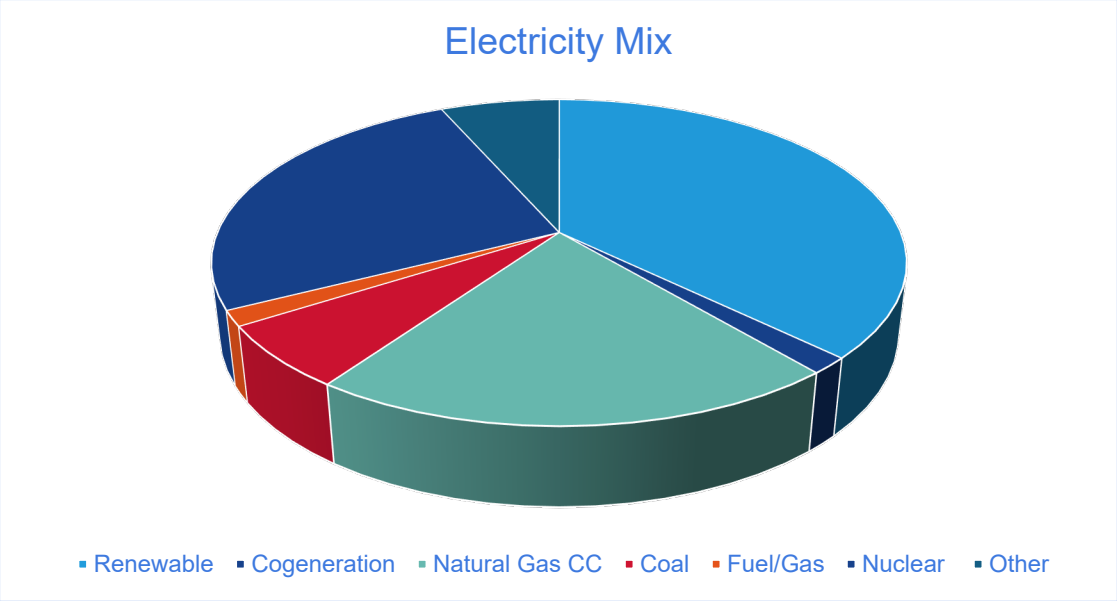
Electricity information

TYPE OF INFORMATION	DESCRIPTION
Location	28 manufacturing sites located in Spain
Electricity mix description*	Renewable 37,22% Cogeneration 1,62% Natural Gas CC 20,92% Coal 6,22% Fuel/Gas 1,52% Nuclear 25,90% Other 6,60%
Reference year	2024
Type of dataset	Cradle-to-gate from Ecoinvent 3.11 modified according to the different suppliers
Source	Supplier
CO_2 emission kg CO_2 eq. / kWh	0,188 kg CO_2 eq/kwh

*The electricity mix shown is calculated considering the different suppliers of the different companies and the contribution of each manufacturing to the electricity consumption.

An EPD is valid for 5 years.

The electricity mix is calculated based on the energy suppliers' specific to each manufacturing facility, weighted by their respective contributions to total electricity consumption. Where guarantees of origin are not available, the residual electricity mix is applied. For manufacturing sites that hold a Guarantee of Origin (GO), they commit to maintaining the GOs throughout the five-year validity period of this Environmental Product Declaration (EPD).



Health characteristics

Concerning the indoor air quality, clear flat glass is an inert material that doesn't release any inorganic & organic compounds, in particular no VOC (volatile organic compounds).

The sealant is made of organic materials which have been tested regarding their VOC emissions (following ISO 16000 standard): Eurofins report G07104, G08363 and G07102. All sealants have an emission class A+.

If the glass is laminated, a PVB layer is included in the glazing. The VOC emissions test (following ISO 16000 standard) rank the PVB A+ (highest rank) following the French regulation (Eurofins report G10504).

Additional Environmental Information

Saint-Gobain's environmental policy
Saint-Gobain's environmental vision is to ensure the sustainable development of its Activities, while preserving the environment from the impacts of its processes and services throughout their life cycle. The Group thus seeks to ensure the preservation of resources, meet the expectations of its relevant stakeholders, and offer its customers the highest added value with the lowest environmental impact.

The Group has set two long-term objectives: zero environmental accidents and a minimum impact of its activities on the environment. Short and medium-term goals are set to address these two ambitions. They concern five environmental areas identified by the Group: raw materials and waste; energy, atmospheric emissions, and climate; water; biodiversity; and environmental accidents and nuisance.

Our products' contribution to Sustainable Buildings:

Saint-Gobain encourages sustainable construction and develops innovative solutions for new and renovated buildings that are energy efficient, comfortable, healthy, and esthetically superior, while at the same time protecting natural resources.
The following information might be of help for green building certification programs:

RESPONSIBLE SOURCING
(Required for BREEAM International new construction 2013 – MAT 03 Responsible sourcing)

All Saint-Gobain Glass Industry sites with a glassmaking furnace, including the Avilés plant, are ISO 14001 certified.

All internal Saint-Gobain Glass quarries are certified ISO 14001 like, for example, SAINT-GOBAIN SAMIN (sand) in France. Many Saint-Gobain Glass raw material suppliers are certified ISO 14001. Our policy consists in encouraging the sourcing of raw materials extracted or made in sites certified ISO 14001 (or the equivalent).

For any other question / document / certification, please contact our local sales teams.

Abbreviations

Abbreviations(unit)	DESCRIPTION
HWD [kg]	Hazardous waste disposed
NHWD [kg]	Non-hazardous waste disposed
RWD [kg]	Radioactive waste disposed
CRU [kg]	Components for re-us
MFR [kg]	Materials for Recycling
MER [kg]	Material for Energy Recovery
EEE [MJ]	Exported electrical energy
EET [MJ]	Exported thermal energy
GWP-GHG [kg CO2 eq	All greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product
PERE [MJ]	Use of renewable primary energy
PERM [MJ]	Renewable primary energy resources used as raw materials
PERT [MJ]	Total use of renewable primary energy resources
PENRE [MJ]	Use of non-renewable primary energy
PENRM [MJ]	Non-renewable primary energy resources used as raw material
PENRT [MJ]	Total use of non-renewable primary energy resources
SM [kg]	Input of secondary material (SM) [kg]
RSF [MJ]	Use of renewable secondary fuels
NRSF [MJ]	Use of non-renewable secondary fuels
FW [m3]	Use of net fresh water
PCR	Product Category Rules
EPD	Environmental Product Declaration
GO	Guarantee of Origin

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. ISO 14025:2006: Environmental labels and Declarations-Type III Environmental Declarations-Principles and procedures.
4. Product category rules 2019 :14. Construction products version 2.0.1.
5. EN 15804:2019+A2/AC:2021 - Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
6. European Chemical Agency, Candidate List of substances of very high concern for Authorization. http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp
7. ISO 21930: 2017 Sustainability in building construction – Environmental declaration of building products
8. EN 17074:2019 Glass in building – Environmental product declaration – Product category rules for flat glass products.
9. General Program Instruction of the International EPD® System (version 5.0.1:2024)
10. LCA report, LIFE CYCLE ANALYSIS OF THE SAINT-GOBAIN BUILDING GLASS CLIMALIT PLUS DOUBLE GLAZING PRODUCT.

Version History

Original version of the EPD, 2024-08-29

Version 2, 2026.05.05

It has been updated to the requirements of the new PCR v2.0.1.
The background processes have been updated to Ecoinvent 3.11.
22 factories have been incorporated, described in PRODUCT INFORMATION.