SAINT-GOBAIN

ORAÉ®

WORLD'S FIRST **LOW-CARBON GLASS** WITH VERIFIED EPD

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With **ORAÉ***, Saint-Gobain Glass has achieved a landmark technical breakthrough enabling it to offer a low embodied carbon glass on the market thanks to a substantial R&D effort and the excellence of our industrial teams.

Its low carbon footprint of 6.64 kg of CO_2 eq./m^2 for a 4 mm glass, is achieved through the use of high amount of recycled content (64%) and renewable electricity.

This innovation will help to significantly reduce the carbon footprint of construction and accelerate the development of the circular economy.

APPLICATIONS

ORAÉ® can be used for new buildings or renovation, residential or non-residential. ORAÉ® can replace standard clear glass of the same thickness, whatever the application:

- **Building envelope**: insulating glazing for windows, facade elements or glass roofs.
- **Other external or internal applications** (e.g., balustrades, doors, partitions…): upon request.

AESTHETICS

ORAÉ® is offering exactly the **same aesthetics** as the regular clear float glass PLANICLEAR®.

PERFORMANCES

ORAÉ® provides the **same performances and quality** as PLANICLEAR®, with a much lower carbon footprint.

EPD VERIFIED

According to its verified EPD, the **ORAÉ®** substrate has a **carbon footprint of only 6.64 kg CO_2 eq./m^2** (for a 4mm substrate), bringing a **reduction of 42%** compared to our European standard product PLANICLEAR®.

	Light Transmission (LT) [1]	Solar Factor (g-value) [1]	Outside reflection (LRe) [1]	Inside reflection (LRi) [1]	Carbon footprint (GWP) A1-A3 [2]	Carbon footprint (GWP) A to C [3]	Carbon reduction vs. PLANICLEAR® [3]
	[%]	[%]	[%]	[%]	[kg CO_2 eq/m^2]	[kg CO_2 eq/m^2]	[%]
ORAÉ* 4 mm	91	88	8	8	5.88	6.64	-42%
PLANICLEAR* 4 mm	91	88	8	8	10.90	11.50	

[1] According to EN410

[2] Global Warming Potential (GWP) A1-A3 Stages (Cradle to Gate); detailed environmental data are documented in the available Environmental Product Declarations (EPD) of PLANICLEAR® and ORAÉ®. Only complete EPD can be verified by an external third party.

[3] Global Warming Potential (GWP) A-C Stages (Cradle to Grave); detailed environmental data are documented in the available Environmental Product Declarations (EPD) of PLANICLEAR® and ORAÉ®. Only complete EPD can be verified by an external third party.

RANGE

ORAÉ® is available as:

- Monolithic clear float glass (in 3, 4, 6, 8 and 10 mm)
- Assembled in STADIP® or STADIP SILENCE® for safety or reinforced acoustic insulation
- Combined with the highly selective solar control product families **COOL-LITE® XTREME** and **COOL-LITE® SKN**
- Combined with summer comfort coatings of the product family **PLANISTAR®**
- Combined with Low-e coatings of the product families **ECLAZ®** and **PLANITHERM®**

Please contact your local sales or specification teams to know the available offer in your country.

GET TO KNOW MORE ON OUR ORAÉ* WEBPAGE

DISCOVER AND TRY CALUMEN®

CHECK OUR EPD OF ORAÉ® (4mm)

DETAILED RANGE OF COATED ORAÉ®

Our coated ORAÉ® products are available in standard sizes and thicknesses (3, 4, 6, 8 and 10 mm).
They provide the **same aesthetics, performances and quality** as on PLANICLEAR®, with a much lower carbon footprint.

For double or triple glazing units, all panes should be made with ORAÉ® to minimize the carbon footprint.

COATED ORAÉ® FOR FAÇADE APPLICATIONS

COOL-LITE® XTREME ORAÉ — COOL-LITE® SKN ORAÉ

Intended for use in the glazed parts of a façade (e.g., curtain wall, double skin façade, skylight…), COOL-LITE® ORAÉ® is a perfect response to the stricter sustainability requirements of the building industry without any compromise on technical or aesthetic performance.

COOL-LITE® ORAÉ® provides the best of both embodied and operational carbon levels, thanks to:

- The glass substrate ORAÉ®, with its low carbon footprint verified by an Environmental Product Declaration (EPD)
- The excellent energy performances of the COOL-LITE® XTREME and COOL-LITE® SKN coatings, which already drastically reduce carbon emissions generated by energy consumption when using the building, thanks to its high performance in terms of daylight intake, solar control and thermal insulation.

COATED ORAÉ® FOR WINDOW APPLICATIONS

PLANISTAR® ORAÉ — ECLAZ® ORAÉ

For windows dedicated to non-residential or residential applications, ORAÉ® is available with a complete range of summer comfort or low-e coatings, offering at the same time

- Low embodied carbon footprint of the glass substrate ORAÉ®
- High thermal performances of the products from the PLANISTAR® or ECLAZ® families for wiser energy consumption and a reduced operational carbon footprint.

As the windows offer is country defined, please contact your local sales team to confirm the low-e or summer comfort offer availability

PERFORMANCES OF COATED ORAÉ®

According to its verified EPD, **coated ORAÉ®** has a **carbon footprint of only 10.71 kg CO_2 eq./m^2** (for a 6mm substrate), bringing a **reduction of 43%** compared to our European standard product coated PLANICLEAR®.

	Carbon footprint (GWP) A1-A3 [2]	Carbon footprint (GWP) A to C [3]	Carbon reduction vs. PLANICLEAR® [3]
	[kg CO_2 eq/m^2]	[kg CO_2 eq/m^2]	[%]
coated ORAÉ* 6 mm	9.21	10.26	-43%
coated PLANICLEAR* 6 mm	17.40	18.11	

Processed and assembled in insulated glazing unit, the reduction is then around 30% to 40%.

	Carbon footprint (GWP) [2, 4]	Carbon reduction vs. PLANICLEAR® [2,4]
	[kg CO_2 eq/m^2]	[%]
Standard build-up double glazing unit (DGU) 6/16/4 mm one pane coated, 90% Argon		
coated ORAÉ* (face #2 or #3)	24	-39%
tempered coated ORAÉ* (face #2 or #3)	28	-36%

	Carbon footprint (GWP) [2, 4]	Carbon reduction vs. PLANICLEAR® [2,4]
	[kg CO_2 eq/m^2]	[%]
Standard build-up Triple glazing unit (TGU) 6/12/4/12/4 mm 2 panes coated, 90% Argon		
coated ORAÉ* (2 panes coated)	36	-38%
tempered coated ORAÉ* + coated ORAÉ*	39	-35%

[2] Global Warming Potential (GWP A1-A3 Stages) values with PLANICLEAR® and ORAÉ® are calculations made with Calumen® for each composition of insulated glazing unit (IGU) on the basis of the standard EN 15804+A2. Detailed environmental data are documented in the available Environmental Product Declarations (EPD) of PLANICLEAR® and ORAÉ®. Only complete EPD can be verified by an external third party.

[4] All panes of the IGU with the same substrate; first pane respectively annealed or tempered (II) with the same glass compositions; counter panes always annealed.

CHECK OUR EPD OF COATED ORAÉ® (6mm)

CHECK OUR DEDICATED COOL-LITE® ORAÉ® DATASHEETS

SAINT-GOBAIN GLASS

Glass, known for its durability, has the incredible quality of being completely recyclable, and it can be recycled endlessly, without any compromise in its mechanical or chemical attributes.

At Saint-Gobain Glass, we put circularity at the heart of our activities. We commit to increase the percentage of cullet (scraps of glass) used in the production of our float glass to 40% by 2030.

Incorporating 1 ton of cullet into our glass production yields to significant environmental benefits:

- Reducing CO_2 emissions by 700 kg (scopes 1, 2 & 3).
- Preserving 1.2 tons of virgin raw materials.

WHERE DOES THE RECYCLED CONTENT OF ORAÉ® COMES FROM?

The recycled content in ORAÉ® comes mainly from glass scraps (cullet) coming from processing plants and also from a growing part of the treatment of glazings at the end of their life.

Thanks to the development of the Saint-Gobain Glass Recycling network, committed to closed-loop recycling the use of cullet from end of life glazing grows every year.

SAINT-GOBAIN GLASS RECYCLING
The network for closed-loop recycling

At Saint-Gobain Glass, we aim to increase cullet coming from external sources. Buildings approaching the end of their lifespan should be viewed as a valuable resource of materials. We have a deep knowledge on what can be considered as cullet, and for any demolition or renovation project, Saint-Gobain Glass is here to offer you consistent support.

LOW CARBON MANUFACTURING OF FLAT GLASS
AT SAINT-GOBAIN GLASS

1
Glazing recovery
Recycling glazing at the end of its life has two major advantages: reducing the carbon footprint of glass and preserving exhaustible resources such as sand.

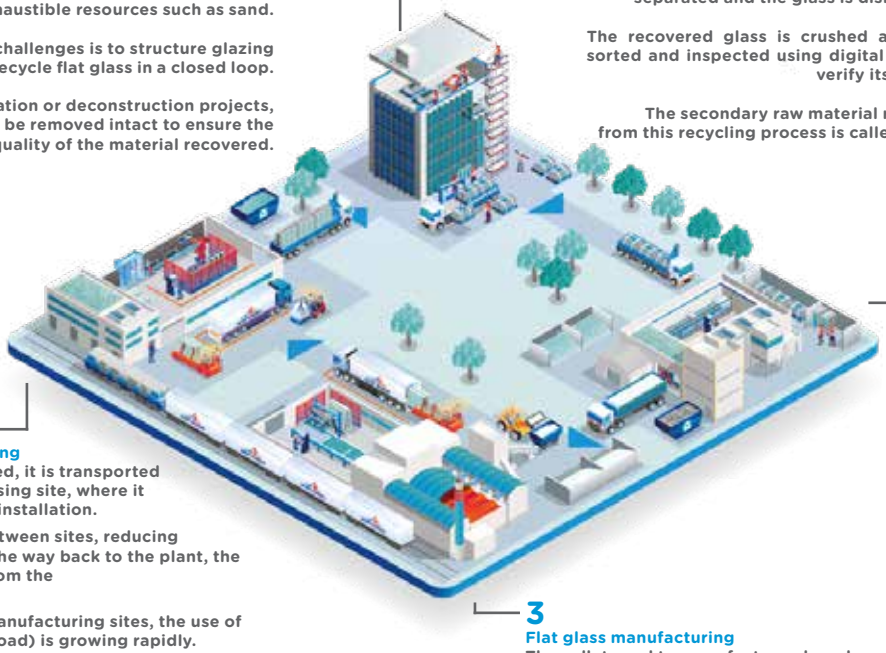
Today, one of the challenges is to structure glazing recovery channels to recycle flat glass in a closed loop.

During renovation or deconstruction projects, the glazing must be removed intact to ensure the quality of the material recovered.

2
Cullet production
Once the glazing has been removed, it is transported to a dismantling site. The different parts of the windows are separated and the glass is dismantled.

The recovered glass is crushed and then sorted and inspected using digital tools to verify its quality.

The secondary raw material resulting from this recycling process is called cullet.



3
Flat glass manufacturing
The cullet used to manufacture glass does not emit CO_2 during its melting, which also requires less energy than for virgin raw materials.

The use of low-carbon energy sources, such as biogas and green electricity, further reduces emissions from glass production.

Other industrial innovations also improve energy consumption in the plant. For example, the heat generated by the furnace can be used as energy in other parts of the production line.

4
Transformation of glass into glazing
Once the flat glass is manufactured, it is transported in an inloader truck to the processing site, where it becomes a glazing unit ready for installation.

Digital tools optimize the flow between sites, reducing transport-related emissions. On the way back to the plant, the truck can be loaded with cullet from the processing scrap.

To reduce road traffic between manufacturing sites, the use of multimodal transport (train and road) is growing rapidly.

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