GUIDELINE FOR PLANICLEAR® / PLANILUX® / DIAMANT® / PARSOL® and ORAÉ®

SAINT-GOBAIN

Document code	Date
SGG-QD-C-GUI-0007-D	06/2023

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1. GENERAL

1.1. PRODUCT DESCRIPTION

PLANICLEAR® is a new standard float glass specification with lower iron content. The lower iron content of PLANICLEAR® reduces the level of absorption - thereby increasing the level of solar gain (g value).

ORAÉ® is the new low carbon footprint substrate which presents same aesthetic, mechanical and optical quality than a substrate PLANICLEAR®. This new substrate is produced with higher level of cullet and with higher proportion of green energy letting to reduce the carbon footprint of the substrate.

DIAMANT® is a highly transparent extra clear glass, which has very little residual color. It has a unique appearance and very specific optical qualities.

PARSOL® is a body-tinted glass, manufactured in the same way as PLANICLEAR® clear float glass. PARSOL® has a colored appearance, as well as basic solar control properties
PARSOL® ULTRA GREY is a highly body-tinted float glass, manufactured in the same way as standard float glass. This method ensures PARSOL® ULTRA GREY has a high shine and intense grey color.

1.2. THICKNESS AND DIMENSIONS

Product	Thickness	Standard dimension
PLANICLEAR®	3/4/5/6/8/10/12/15/19 mm	6000 x 3210
PLANILUX®	3/4/5/6/8/10/12/15/19 mm	
DIAMANT®	3/4/5/6/8/10/12/15/19 mm	
ORAÉ®	3/4/5/6/8/10mm	
PARSOL® Green	3/4/5/6/8/10/12 mm	
PARSOL® Grey	4/5/6/8/10 mm	
PARSOL® Saphire	4/5/6/8/10 mm	
PARSOL® Ultra-Grey	4/5/6/8/10 mm	

1.3. CE MARKING

PLANICLEAR® / ORAÉ® / DIAMANT® / PARSOL® comply with the EN 572-2 '' Glass in building — basic soda lime silicate glass products — Part 2: Float glass''. These products receive the CE-Marking. The Declaration Of Performance (DOP) of each product CE marked is available at the web site:

www.saint-gobain-glass.com/ce

1.4. QUALITY CRITERIA FOR FLOAT GLASS

1.4.1. Definition of appearance defects

The following definitions are given by the standard EN 572-2

1.4.2. Conditions of observation

The conditions of observation are given in the standard EN 572-2. Please refer to it for details.

1.4.3. Acceptance criteria of float glass defects

Without prior agreement between both parties, the standard EN 572-2 will apply.

2. TRANSPORT, RECEPTION, STORAGE AND HANDLING

2.1. TRANSPORT

- Float glass sheets are usually transported in 2.5 tonnes packs measuring 6000 mm x 3210 mm (jumbo or PLF sizes).
- Glass sheets must be transported vertically (at 3 – 7 degrees).
- During transport, violent and repeated shocks should be avoided.
- When handling with a manipulator, measures must be taken not to damage the pack.

2.2. RECEIPT OF THE DELIVERY

- Labels are never placed on the glass face.
- In case of packing (delivery for special application), the pack must be opened with care in order not to damage the glass sheet (contacts, scratches, breakage, etc.).
- All deliveries are identified with an identification label providing the following data:
  - Product name
  - CE Marking
  - Dimensions and thickness
  - Number of sheets
  - Net-weight
  - Date and time of production
  - Bar code and batch number of the glass
  - Bar code of the float glass backing sheet
  - CE marking information: in addition to the CE symbol, website address and CE product code are mentioned. By going on www.saint-gobain-glass.com/ce then entering the product code and the production date, one can access to the CE product declaration of performances and characteristics related to the product (DOP document)
- In case of delivery with obvious disagreements detected at reception (water, breakages…), glass should not be unloaded and waybill (CRM) fully completed by customer and transport entities. A possible expert visit could be organized to define responsibilities.

2.3. STORAGE

All glass products will become stained if they are stored in humid conditions; the iridescence has the appearance of a "rainbow" or milky white coating on the surface of the glass.
The glass sheets have to be stored vertically (at 3 - 7 degrees) under the following conditions:

- In a dry, well-ventilated store, to prevent any condensation on the surface;
- Protected from rain and running water (e.g. any roof leaks must be rectified);
- Never outside or in the open air;
- Protected from wide changes in temperature and humidity.

2.4. HANDLING

The float glass sheets must be handled with dry, clean gloves.
In case you cannot avoid handling operations with vacuum cups, make sure that the vacuum cups are silicone free and perfectly clean.

3. PROCESSING OF PLANICLEAR®, PLANILUX®, DIAMANT®, PARSOL®, ORAÉ®

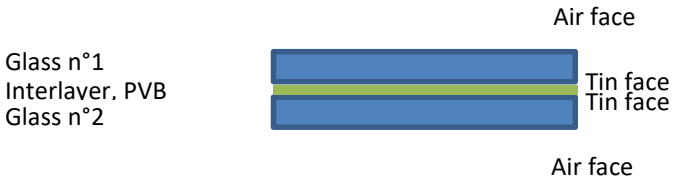
3.1. CUTTING

PLANICLEAR® and equivalent must be cut as standard float glass.
Usual recommendations are:

- Clean table to avoid any scratches risk
- Use of clean gloves to avoid any marks on the glass
- Avoid any contact with silicones (suction cups, protective personal equipment ect.). This could let un-washable marks disturbing future processing like enameling
- Use cutting oil in adapted quantity
- Use adapted cutting wheel (angle/type) depending of the cut product and use
- Make sure that the cut has no interruption, if necessary clean the cutting wheel and/or reduce the cutting speed
- Respect EN 572 standards in term of edge quality after cutting to avoid risk of thermal break

3.2. LAMINATION

When laminating annealed cut size of thick glass as such 8mm or higher it is recommended to assembly with following configuration: **both tin faces in contact with PVB interlayer**



Use of tin check or UV lamp could be used to face detection.

Objective is to avoid risk of edge bubbles due to thickness profile.
If this kind of configuration is not possible, it is recommended to remove at the cutting the 2 cm edges of the width jumbo.

Other recommendations are:

- Condition of storage of interlayer should be respected (temperature and humidity), please contact your interlayer supplier to get recommendations.
- Be sure the calendaring rollers are in good condition (clean and free of glass shards or particles)
- Calendaring rollers should be parallel to apply regular pressure at any position.
- If laminating heat-treated glass, take care that the PVB thickness is adapted to compensate the possible glass deformation (roller wave, bow, edge lift) created during the heat-treatment process. We recommend using 4 foils of 0.38mm in that case.
- Use of clamps to do lamination is not recommended at any time, especially during autoclaving. This could be a cause of optical distortion of the glass and possible delayed glass delamination. Use of clamps can hide possible quality deviation in production.

4. ENVIRONMENT / WASTE GLASS / HEALTH ISSUES

PLANICLEAR® / ORAÉ® / DIAMANT® / PARSOL® can be recycled. Collection of substrates in what we call cullet is important for many reasons**. Collection should respect rules to get clean cullet possible to reuse in new glass production**.

PLANICLEAR® / ORAÉ® / DIAMANT® can be collected together.

PARSOL® should be collected in different way and per type of color (green, blue, grey).

Here is a not exhaustive list of cullet pollutant:

- Papers and cartons
- All metallic sources as aluminium spacer bar
- Pyro ceramic glass
- Borosilicate glass
- Bottle glass
- Georgian wired glass
- Cutting wheel metallic parts
- Glass marker and more generally all elements no nickel sulphite free
- …

Please contact your local commercial team and technical support to have full details about rules of glass collection.

Edge working residues have to be continuously and completely collected during the grinding process. These residues must be further treated in compliance with national legislation about industrial wastes. In some legislation, residues from grinding process have to be treated as toxic wastes.

As for any dust coming from the grinding process, any inhalation or skin contact of these residues must be avoided.

On request, a **S**afety **U**se **I**nstruction **S**heet (SUIS) relating to the ECDirective 91/155/EEC can be supplied.

5. DISCLAIMER

SAINT-GOBAIN GLASS has taken every reasonable measure to ensure that the information contained in the present leaflet was exact at the time of its publication.

However, SAINT-GOBAIN GLASS keeps the right to modify or add any information without previous notice. SAINT-GOBAIN GLASS is not liable for the possible lack of information on PLANICLEAR® / ORAÉ® / DIAMANT® / PARSOL® products that would not be contained in the present document.

No claim can be accepted for damages caused during and after processing due to a lack of adherence to these guidelines. Therefore, glass processor should ensure that the process is adapted for coated glass and that the quality control is relevant to detect any quality problem as soon as possible. In case of claim, samples will be required and a visit from a SGG representative may be requested.

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