

SGG **BIOCLEAN[®]**

Self-cleaning glass

Technical Sheet
United Kingdom

SGG BIOCLEAN®

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Description

SGG BIOCLEAN is a dual-action self-cleaning glass manufactured by depositing a transparent coating of hydrophilic and photocatalytic mineral material onto clear glass. This coating is applied online during the float manufacturing process by means of pyrolysis, ensuring a high level of durability.

SGG BIOCLEAN harnesses the power of UV rays present in daylight and rain to efficiently combat dirt and grime that accumulates on the outside of windows:

- exposure to UV rays triggers the decomposition of organic dirt and causes the surface of the glass to turn hydrophilic
- rain (or water) forms a sheet of water across the glass and rinses away the broken-down organic dirt and mineral materials.



Applications

SGG BIOCLEAN has been designed for external use, either in the home or commercial buildings, both for new-build and refurbishment projects, including:

- windows and external doors
- skylights, overhead and atria glazing
- conservatories, roofs and patio doors
- glazed facades
- external shopfronts
- display windows
- street furniture

SGG BIOCLEAN is the ideal cleaning solution for external glazing that is exposed to light and rain. SGG BIOCLEAN can be used in all environments and is particularly effective:

- in an urban environment
- in the countryside
- in seafront locations
- in heavily polluted areas (e.g. areas close to heavy traffic, nearby airports, railway lines or industrial estates).

Advantages

- Less frequent cleaning: windows stay cleaner for longer.
- Save money: the cost of window cleaning is reduced.
- Much easier cleaning: dirt adheres less to the surface of the glass.
- Clear vision through your windows even when it's raining.
- Ideal for hard to reach areas where cleaning may be difficult or dangerous.
- Less frequent use of detergents: helping to protect the environment.
- Neutrality and transparency is the same as conventional glass. The most neutral self-cleaning glass available.



Glass roof, St Nicholas Market, Bristol

Range

SGG BIOCLEAR is available on SGG PLANILUX, SGG PLANITHERM FUTUR N and many products from the SGG COOL-LITE range. In the two latter cases, the glass is dual-coated with a coating on each face.

Monolithic glass

| SGG BIOCLEAR : range and manufacturing sizes | | | |
|--|-----------|------------|------|
| Products | Thickness | Dimensions | |
| SGG BIOCLEAR | 4-6-8-10 | 6000 | 3210 |
| SGG PLANITHERM FUTUR N | 4 | 6000 | 3210 |
| SGG BIOCLEAR COOL-LITE ST | 4-6 | 6000 | 3210 |

Other dimensions, thicknesses and COOL-LITE products are available: please contact SAINT-GOBAIN GLASS for details.

Laminated glass

SGG BIOCLEAR can be laminated in standard compositions using a conventional PVB interlayer (SGG STADIP and SGG STADIP PROTECT) or an acoustic PVB interlayer (SGG STADIP SILENCE). For specific dimensions and compositions please contact SAINT-GOBAIN GLASS.

Performance

Self-cleaning function

SGG BIOCLEAR is designed to combat dirt that is deposited onto the exterior face of the glass:

- dried water marks
- organic atmospheric pollutants
- dust
- sea spray
- insect residues

The performance of the self-cleaning function can vary depending on the environment and the location of the glass, such as:

- the type of dirt
- the amount of dirt
- total exposure to light and rain
- the incline of the window

Optimum performance is obtained when glazed in a vertical position with maximum exposure to direct sunshine and rain.

During dry spells or in shaded areas, SGG BIOCLEAR still has the ability to clean itself more easily than ordinary glazing and may simply require a rinse with clean soft water to help keep windows clean.

SGG BIOCLEAR should never be considered as a glass which requires no maintenance. SGG BIOCLEAR cannot break down large areas of solid, mineral dirt such as cement, paint, varnish, silicones, etc.

NB: to activate the coating, the glass must be exposed to natural light for several days after installation.

Reflected visual appearance

SGG BIOCLEAR has a very similar visual appearance to that of conventional glass, as it has an extremely neutral coating. However, all coated glass, even the most neutral, can have a slightly different appearance when viewed in reflection. This is a characteristic that is inherent to coated products and is dependent on the distance, the angle of incidence, the ratio between the levels of internal/external lighting of the building and the type of objects that are reflected on the facade.

Spectrophotometric Performance

The spectrophotometric values of a single or double-glazed unit, are very similar, either with or without an SGG BIOCLEAR self-cleaning coating.

Other properties

The mechanical, thermal and acoustic properties of SGG BIOCLEAR are identical to those of conventional glass.

| SGG BIOCLEAR: Comparison of spectrophotometric values for SGG PLANILUX and SGG BIOCLEAR | | | | | | |
|---|----------------|---------------|-------|------|--------------|--------------------------|
| Products | Composition | Light Factors | | UV | Solar Factor | U-Value |
| | | LT % | LRe % | UV % | g | U W/ (m ² .K) |
| SGG PLANILUX | 4 mm | 90 | 8 | 56 | 0,85 | 5.8 |
| SGG BIOCLEAR | 4 mm | 87 | 11 | 51 | 0,83 | 5.8 |
| SGG STADIP PROTECT | 8.8 | 87 | 8 | <1 | 0,76 | 5.7 |
| SGG BIOCLEAR STADIP PROTECT | 8.8 | 84 | 11 | <1 | 0,74 | 5.7 |
| SGG CLIMAPLUS* | 4 (16 argon) 4 | 79 | 12 | 31 | 0,63 | 1,2 |
| SGG CLIMAPLUS CLEAN* | 4 (16 argon) 4 | 77 | 15 | 27 | 0,62 | 1,2 |

* incorporating SGG PLANITHERM TOTAL 90% argon-filled cavity. Values in accordance with standards BS EN 410 and BS EN 673 (self-cleaning coating on face 1)

| SGG BIOCLEAR / SGG STADIP BIOCLEAR | | | | | | | | | | | |
|------------------------------------|-----------------------|------|------|------|------|-------------------------------|------------------------|------|------------------------|------|------------------------|
| Self-cleaning glass | | | | | | Laminated self-cleaning glass | | | | | |
| Thickness | mm | 4 | 6 | 8 | 10 | 8.8 | 8.8 | 12.8 | 12.8 | 16.8 | 16.8 |
| Coating position | face | 1 | 1 | 1 | 1 | 1 | 1 and 2 ⁽¹⁾ | 1 | 1 and 2 ⁽¹⁾ | 1 | 1 and 2 ⁽¹⁾ |
| Light factors | | | | | | | | | | | |
| LT | % | 87 | 86 | 85 | 84 | 84 | 82 | 82 | 80 | 80 | 78 |
| LRe | % | 11 | 11 | 11 | 11 | 11 | 13 | 11 | 13 | 11 | 13 |
| LRi | % | 11 | 11 | 11 | 11 | 11 | 13 | 10 | 13 | 10 | 13 |
| UV | % | 51 | 46 | 42 | 39 | <1 | <1 | <1 | <1 | <1 | <1 |
| Energy factor | | | | | | | | | | | |
| T | % | 81 | 78 | 74 | 71 | 69 | 68 | 63 | 62 | 58 | 57 |
| Re | % | 10 | 10 | 10 | 10 | 10 | 11 | text | 11 | 9 | 11 |
| Ri | % | 10 | 10 | 9 | 9 | 9 | 12 | 8 | 11 | 8 | 11 |
| A | % | 8 | 12 | 16 | 19 | 21 | 20 | 27 | 27 | 33 | 32 |
| Solar factor g | | 0.83 | 0.81 | 0.78 | 0.76 | 0.74 | 0.73 | 0.70 | 0.69 | 0.67 | 0.66 |
| Shading Coefficient | | 0.96 | 0.93 | 0.90 | 0.87 | 0.86 | 0.84 | 0.81 | 0.80 | 0.77 | 0.75 |
| U-value | W/(m ² .K) | 5.8 | 5.7 | 5.7 | 5.6 | 5.7 | 5.7 | 5.5 | 5.5 | 5.4 | 5.4 |

(1) SGG BIOCLEAR coating on both faces for specific applications.

Processing

Thanks to its manufacturing technique which gives it excellent durability, sGG BIOCLEAR can be handled and stored in the same way as uncoated glass. Caution: avoid all contact with products that contain silicones or silicone fumes.

sGG BIOCLEAR can be easily processed to combine several functions and be integrated into:

- double-glazed units
 - sGG STADIP SILENCE acoustic laminated glass, or sGG STADIP or sGG STADIP PROTECT safety glass.
- sGG BIOCLEAR can also be toughened, heat-strengthened, heat-soak tested, curved or enamelled (enamel applied to the non-coated side).

Coating detectors are available. Please contact SAINT-GOBAIN GLASS marketing department for details.

Main instructions

- Avoid all contact between the coating and sharp or pointed objects.
- Avoid all direct contact with silicone (sprays, sealants, suckers, gloves, cloths, etc.).
- Separate stock and processed glass sheets with non-adhesive transit pads.

Assembly into double-glazed units

- The coating must not be edge-deleted before assembly.

Installation Guidelines

Main instructions specific to sGG BIOCLEAR

- Ensure that sGG BIOCLEAR is installed with the coating facing the outside (face 1).
- sGG BIOCLEAR must be installed in a vertical or sloping position at a minimum angle of 10° in relation to the horizontal.
- Sealants for framed glass:
 - do not use silicone sealants. Certain MS Polymer, XMAP or hybrid polyurethane sealants can be used.
 - use preformed dry gaskets, such as EPDM or TPE with no silicone coating.
- Thoroughly protect the glass against splashes of concrete, cement, paint, sealants, etc.
- Carefully clean the glass when all site work has been completed.

For further details, please refer to the installation guidelines (Document B2) and the list of recommended products for use with sGG BIOCLEAR available from www.selfcleaningglass.com

Maintenance

sGG BIOCLEAR does not need to be cleaned as frequently as conventional glass. However it is not a "maintenance-free" glass.

- Should the glass require cleaning, this can be done by simply rinsing with soft or demineralised water. For stubborn marks, use warm soapy water with a clean sponge or a standard window cleaning product and a clean soft cloth.
- Do not use razor blades, wire wool, knives or any other sharp or abrasive objects.
- Do not use abrasive cleaning products or products that are not intended for glass.

For further details, please refer to the maintenance guidelines (Document B1) or visit www.selfcleaningglass.com



*Fergamma Offices, Italy
Architect : Amerigo Berto*

Standards and Regulations

SGG BIOCLEAN complies with the requirements of class A of European standard BS EN 1096 (coating on face 1) and carries the relevant CE mark as required.

The self-cleaning function is not yet the subject of a special standard. If necessary, it will be evaluated in conditions that are very similar to the conditions in which the glass will eventually be installed.



Self-cleaning noise barrier,