

Extract from the Environmental Product Declaration

In conformity with International Standards ISO 14025, ISO 14040 & ISO 14044

AFNOR Registration Number N° 08-265 : 2011

SGG DECORGLASS® SGG MASTERGLASS®

4 mm

Patterned glass

Other configurations studied:

- 6 mm ;
- 8 mm.

The environmental impacts of this product have been assessed over its whole life cycle.

Its Environmental Product Declaration has been verified by an independent third party.





EXTRACT FROM THE
ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH ISO 14025 and ISO 14040

SGG MASTERGLASS[®]/SGG DECORGLASS[®]

(Patterned glass range)

4 mm

Additional thicknesses : 6 mm, 8 mm

Version 2.0 November 2012
Verified under AFNOR programme
AFNOR Registration number N° 08-264: 2011

1. Data Sources

SAINT-GOBAIN GLASS is responsible for disclosing any information contained in this declaration in accordance with NF P 01-010 § 4.6.

Contact : sustainable.glass@saint-gobain.com

2. Product characterisation in accordance with NF P 01-010 § 4.3

2.1 Definition of the functional unit (FU)

1 m² of patterned tempered glass to be incorporated into a building or a furniture for one year. The Reference Service Life (RSL) considered is 30 years. The patterned glass is installed following the best practices.

2.2 Product mass and basic data required to calculate the functional unit (FU)

Product unit (nature and quantity)

It is composed of a sheet of patterned glass with a nominal thickness of 4mm and an actual thickness of 3.9mm tempered over half of its surface. Indeed, the market for this type of product is more or less evenly split between SGG MASTERGLASS®/ SGG DECORGLASS® tempered (for safety and security reasons) and non-tempered glass. This EDP consequently presents the average results for this product family.

The reference flow of the product Life Cycle Assessment (LCA) is 1 m² of product over a period of 25 years.

The reference flow of the FU is then 0.325 kg per year and 9.75 kg over the RSL of 30 years.

Distribution packaging (nature and quantity): a 1 m² tempered glass needs the following packaging:

- Metal: 6.33 E-5 kg (0.0019 kg over the whole RSL);
- Board: 3.9 E-04 kg (0.0117 kg over the whole RSL);
- Spacer powder: 1.67 E-5 kg (0.0005 kg over the whole RSL);
- Plastic materials (polyethylene, polystyrene, polypropylene) : 7.67E-4 kg (0.023 kg over the whole RSL);
- Wood (kg): 1.17 E-3 kg (0.035 kg over the whole RSL).

Installation accessories: Not taken into account because there are several methods of installation. This in accordance with the standard NF P01-010§4.3c.

Material losses: There are no material losses in the installation or on the building because there is no cutting to be done on the job-site, the products being delivered with the final dimensions.

Use: Cleaning is taken into account: 0.2 l of cleaning solution per m² of mirror and per year.

Substantiation of information disclosed: the information collected comes from 2 European sites producing SGG MASTERGLASS®/ SGG DECORGLASS® and a panel of French SAINT-GOBAIN GLASSOLUTIONS sites for the tempering (representative of other GLASSOLUTIONS sites in Europe).

2.3 Useful technical characteristics not contained in the definition of the functional unit

The product complies with the EN 572-5 standard.

3. Environmental impacts representative of construction products in accordance with NF P 01-010 6

N°	Environmental impact	Indicator value for the Functional Unit			
		4 mm	6 mm	8 mm	Units
1	Consumption of energy resources				
	Total primary energy	7.23	10.2	13.3	MJ/FU
	Renewable energy	0.269	0.319	0.371	MJ/FU
	Non-renewable energy	6.96	09.8	12.9	MJ/FU
	Fuel energy	7.10	10.0	13.1	MJ/FU
2	Depletion of natural resources	0.00309	0.00439	0.00577	kg of antimony (Sb) eq./FU
3	Total water consumption	3.97	05.7	07.6	litre/FU
4	Solid waste:				
	Recovered waste (total)	0.0177	0.0265	0.0357	kg/FU
	Waste disposed of:				
	Hazardous waste	0.00207	0.0027	0.0034	kg/FU
	Non-hazardous waste	0.00757	0.010	0.013	kg/FU
	Inert waste	0.331	0.4957	0.6691	kg/FU
Radioactive waste	7.46 E-05	0.000107	0.000142	kg/FU	
5	Climatic change	0.511	0.73	0.96	kg of CO ₂ eq./FU
6	Atmospheric acidification	0.00367	0.00528	0.00699	kg of SO ₂ eq./FU
7	Air pollution	59.7	84	110	m ³ /FU
8	Water pollution	0.285	0.420	0.563	m ³ /FU
9	Stratospheric ozone layer depletion	3.63 E-12	5.49 E-12	7.43 E-12	kg CFC eqR11/FU
10	Formation of photochemical oxidants	0.000346	0.000490	0.000643	kg of ethylene eq./FU
Other indicator (not included in the NF P 01-010)					
11	Eutrophication	0.183	0.276	0.374	g eq PO ₄ ³⁻ /FU

N°	Environmental impact	Indicator value for the Reference Service Life			
		4 mm	6 mm	8 mm	Units
1	Consumption of energy resources				
	Total primary energy	217	305	398	MJ
	Renewable energy	8.08	09.6	11.1	MJ
	Non-renewable energy	209	295	387	MJ
	Fuel energy	213	300	393	MJ
2	Depletion of natural resources	0.0926	0.132	0.173	kg eq antimony (Sb)
3	Total water consumption	119	172	229	litre
4	Solid waste:				
	Recovered waste (total)	0.532	0.80	1.07	kg
	Waste disposed of:				
	Hazardous waste	0.0620	0.082	0.102	kg
	Non-hazardous waste	0.227	00.3	00.4	kg
	Inert waste	9.92	14.87	20.07	kg
Radioactive waste	0.00224	0.00321	0.00425	kg	
5	Climatic change	15.3	21.9	28.8	kg eq CO ₂
6	Atmospheric acidification	0.110	0.158	0.210	kg eq SO ₂
7	Air pollution	1 792	2 524	3 299	m ³
8	Water pollution	8.56	12.6	16.9	m ³
9	Stratospheric ozone layer depletion	1.09 E-10	1.65 E-10	2.23 E-10	kg CFC eq R11
10	Formation of photochemical oxidants	0.0104	0.0147	0.0193	kg eq ethylene
Other indicator (not included in the NF P 01-010)					
11	Eutrophication	5.5	8.27	11.2	g eq PO ₄ ³⁻

4. Product contribution to assessing health risks and quality of life inside buildings in accordance with NF P 01-010 § 7

Product contribution	Environnemental Impact	Comments
To assess health risks	Indoor air quality	<p>Patterned glass is an inert material which releases no elements. Through the manufacturing process in particular (melting at over 1000°C) glass neither contains nor emits any VOCs.</p> <p>Radioactive emissions: no natural radioactivity measured.</p> <p>Fibres and particulates emissions: not relevant for glass.</p> <p>Micro-organisms and mould: some moulds can grow on the glass surface, but they do not produce any degradation. These moulds can be removed easily (report CONIDIA DEV 0111-006).</p>
	Water quality	There is no impact. No migration of glass elements occurs when in contact with water (REACH Dossier CPIV).
To the quality of life	Hygrothermal comfort	Not applicable.
	Acoustic comfort	Not applicable.
	Visual comfort	The translucent quality of SGG MASTERGLASS®/ SGG DECORGLASS® provides brightness while ensuring the privacy of the place itself and its occupants.
	Olfactive comfort	No odour emission test has been conducted.

5. Additional information

On average, 30% of the weight of a glass pane produced by SAINT-GOBAIN GLASS comes from internally recycled cullet (compared to 20% 10 years ago).

Cullet from SGG MASTERGLASS®/ SGG DECORGLASS® can be recycled in a glass furnace after treatment to separate the glass from the fixing materials. Nowadays however, nearly 95% of glass at the end of life goes to landfill due to a lack of dismantling, sorting and collecting networks. The collect rate of glass at the end of life is thus only 5 %.

Abbreviations used:

RSL: Reference Service Life.

FU: Functional Unit.

VOC: Volatile Organic Compounds.