

Extract from the Environmental Product Declaration

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

AFNOR Registration Number N° 08-258:2011

SGG MIRALITE® REVOLUTION

4 mm

Lead free mirror

Others configuration studied:

- 2 mm / 3 mm / 5 mm / 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.



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 mirror to be incorporated into a building or furniture for one year. The Reference Service Life (RSL) considered is 25 years. The mirror 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) for the reference 4 mm.

The mirror considered is part of the SGG MIRALITE REVOLUTION[®] range; it is composed of a sheet of clear glass with a nominal thickness of 4 mm treated by a silvering process to give it the characteristics of a mirror before being coated in protective paint.

The product is cut and its edges are polished.

The mass of the glass for each year is 0.390 kg (9.63 kg over the whole RSL). This mass include the mirror and the assembly accessories

The reference flow of the FU is then 0.390 kg per year and 9.63 kg over the RSL of 25 years.

Distribution packaging (nature and quantity): a 1 m² mirror 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:

- 75 g of silicone adhesive;
- 30 g of double-backed sticky tape; and
- 700 g of steel corresponding to the wire clips and metal rails.

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 10 European sites producing SGG PLANILUX[®], 4 European sites producing SGG MIRALITE REVOLUTION[®] (SAINT-GOBAIN GLASS) and 2 sites GLASSOLUTIONS sites involved in the transformation of the mirror (cut and edge polishing) .

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

The light reflexion RL is 92%. The product complies with the EN 1036 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						Units
		4 mm	2 mm	3 mm	5 mm	6 mm	8 mm	
	Thickness							
1	Consumption of energy resources							
	Total primary energy	9.40	6.22	7.81	11.0	12.6	16.0	MJ/FU
	Renewable energy	0.401	0.335	0.368	0.434	0.467	0.538	MJ/FU
	Non-renewable energy	9.00	5.88	7.44	10.6	12.1	15.5	MJ/FU
	Fuel energy	8.84	5.75	7.30	10.4	11.9	15.3	MJ/FU
2	Depletion of natural resources	0.00360	0.00232	0.00296	0.00424	0.00488	0.00626	kg of antimony (Sb) eq./FU
3	Total water consumption	5.99	3.94	4.97	7.01	8.04	10.2	litre/FU
4	Solid waste:							
	Recovered waste (total)	0.0276	0.0170	0.0224	0.0334	0.972	0.051	kg/FU
	Waste disposed of:							
	Hazardous waste	0.0027	0.00194	0.00230	0.00303	0.00340	0.00418	kg/FU
	Non-hazardous waste	0.0364	0.0362	0.0363	0.0364	0.0365	0.0366	kg/FU
	Inert waste	0.406	0.207	0.306	0.505	0.604	0.817	kg/FU
	Radioactive waste	4.40 E-05	3.24 E-05	3.82 E-05	4.97 E-05	5.55 E-05	6.79 E-05	kg/FU
5	Climatic change	0.596	0.364	0.480	0.712	0.828	1.08	kg of CO ₂ eq./FU
6	Atmospheric acidification	0.00402	0.00244	0.00323	0.00482	0.00561	0.00731	kg of SO ₂ eq./FU
7	Air pollution	65.7	40.9	53.3	78.1	90.5	117	m ³ /FU
8	Water pollution	0.222	0.159	0.191	0.254	0.286	0.354	m ³ /FU
9	Stratospheric ozone layer depletion	4.79 E-12	2.30 E-12	3.55 E-12	6.04 E-12	7.30 E-12	9.99 E-12	kg CFC eqR11/FU
10	Formation of photochemical oxidants	0.000226	0.000166	0.000196	0.000256	0.000286	0.000350	kg of ethylene eq./FU
Other indicator (not included in the NF P 01-010)								
11	Eutrophication	0.248	0.123	0.186	0.311	0.374	0.510	g eq PO ₄ ³⁻ /FU

N°	Environmental impact	Indicator value for the Reference Service Life						Units
		4 mm	2 mm	3 mm	5 mm	6 mm	8 mm	
	Thickness							
1	Consumption of energy resources							
	Total primary energy	235	155	195	275	315	400	MJ
	Renewable energy	10.0	8.36	9.19	10.8	11.7	13.4	MJ
	Non-renewable energy	225	147	186	264	303	387	MJ
	Fuel energy	221	144	183	260	298	382	MJ
2	Depletion of natural resources	0.0900	0.0580	0.0741	0.106	0.122	0.157	kg eq antimony (Sb)
3	Total water consumption	150	98.5	124	175	201	256	litre
4	Solid waste:							
	Recovered waste (total)	0.698	0.424	0.557	0.835	0.972	1.27	kg
	Waste disposed of:							
	Hazardous waste	0.0666	0.0484	0.0575	0.0758	0.0849	0.105	kg
	Non-hazardous waste	0.909	0.906	0.908	0.911	0.912	0.915	kg
	Inert waste	10.1	5.18	7.66	12.6	15.1	20.4	kg
	Radioactive waste	0.00110	0.000811	0.000955	0.00124	0.00139	0.00170	kg
5	Climatic change	14.9	9.11	12.0	17.8	20.7	26.9	kg eq CO ₂
6	Atmospheric acidification	0.101	0.0610	0.0808	0.120	0.140	0.183	kg eq SO ₂
7	Air pollution	1 642	1 022	1 333	1 953	2 264	2 932	m ³
8	Water pollution	5.56	3.98	4.77	6.35	7.14	8.84	m ³
9	Stratospheric ozone layer depletion	1.20 E-10	5.76 E-11	8.89 E-11	1.51 E-10	1.83 E-10	2.50 E-10	kg CFC eq R11
10	Formation of photochemical oxidants	0.00564	0.00414	0.00489	0.00639	0.00714	0.00875	kg eq ethylene
Other indicator (not included in the NF P 01-010)								
11	Eutrophication	6.21	3.07	4.64	7.79	9.36	12.7	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>The paint used for SGG MIRALITE REVOLUTION® contains less than 50 ppm of lead. Test report TüV TC 2663-0004.</p> <p>VOC emissions during use after 28 days : < 2 µg/m³ (Eurofins 76921B).</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	Not applicable.
To the quality of life	Hygrothermal comfort	Not applicable.
	Acoustic comfort	Not applicable.
	Visual comfort	By capturing and reflecting light, SGG MIRALITE REVOLUTION® enhances and augments residential or office indoor spaces.
	Olfactive comfort	No odour emission test has been conducted.

5. Additional information

At the date of this document, the range of products SGG MIRALITE REVOLUTION® do not contain any substance included in the candidate list of substance for authorisation in more than 0.1% (REACH regulation). This range of product is also in conformity with the RoHS directive.

Cullet from SGG MIRALITE REVOLUTION® 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