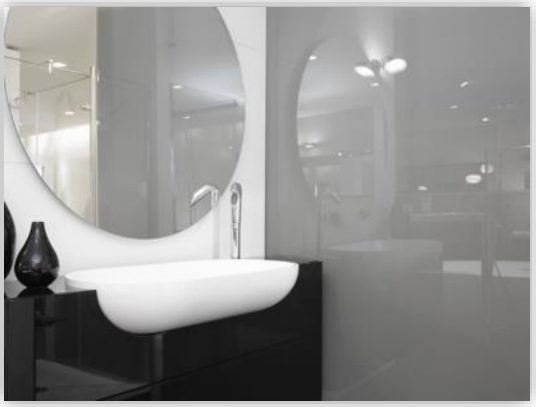
ENVIRONMENTAL PRODUCT DECLARATION

In accordance with EN 15804+A1 and ISO 14025

MIRALITE® PURE

Mirror with water based paint

on 3 to 8 mm glass



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EPD VERIFIED

EPD®

EPD Registration number
S-P-01744

SAINT-GOBAIN

PROGRAMME INFORMATION

Programme	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com

Product category rules (PCR): EN 15804 as the core PCR and PCR for construction products and construction services issued by the International EPD System (PCR 2012:01 Construction products and construction services, version 2.31 2019-12-20)
PCR review was conducted by: The Technical Committee of the International EPD® System. Contact via info@environdec.com
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☒ EPD verification
Third party verifier: Elena Antuña-Bernardo, EA consultant Elena@eaconsultant.eu Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804.

COMPANY INFORMATION

Owner of the declaration	SAINT-GOBAIN GLASS France 18 avenue d'Alsace 92400 Courbevoie France
Name and location of production sites	SG Cristaleria, Avda. de Lugo 112, 33408 AVILES ; SG Glass Italia, VIA PONTE A PIGLIERI 2, 56100 PISA ; SG Glass Polska, ul. Szklanych Domów 1, 42-530 Dąbrowa Górnicza ; EUROFLOAT, 312 rue des Balmes, 38150 Salaise-sur-Sanne ; SG GLASS ROMANIA, Str. Varianta Nord 61, 910053 CALARSI ; SG GLASS FRANCE, 1 boulevard de la République, 59580 EMERCHICOURT ; SG GLASS UK, Weeland Road, DN14 0ED EGGBOROUGH ; SG GLASS DEUTSCHLAND, Solarstrasse 1, 04860 TORGAU ; Postrasse 103, 51143 KOELN-PORZ ; Nikolaustrasse 1, 52222 STOLBERG.

PRODUCT INFORMATION

Product name	MIRALITE® PURE
Product description	MIRALITE® PURE is a mirror with water based paint, on a 3 to 8mm of PLANICLEAR® glass
Classification CPC	37116 "Glass mirrors ; multiple walled insulating units of glass".
Geographical coverage and time period	Information was established over the year 2018. The information collected comes from the European sites producing PLANICLEAR® and MIRALITE® PURE (SAINT-GOBAIN GLASS INDUSTRY)

Product description and description of use

MIRALITE® PURE is a mirror, with low VOC paint (water based, no lead is added to the protective paint, no aromatic solvent added). It is meant to be used in building, furniture and industrial applications.

MIRALITE® PURE is in conformity with the European Standard EN 1036.

Performance data (required by the EN1036 standard)

Thickness (mm)	3	4	5	6	8
Visible parameters					
Reflectance % (minimum=)	86%	86%	86%	86%	83%

Tableau 1 : performances data for MIRALITE®PURE on different thicknesses of PLANICLEAR ®.

The performance data are given according to the ISO 9050 standard.

Even if this EPD is about the MIRALITE® PURE produced using PLANICLEAR®as substrate, it can be produced also using different glass substrate:

- DIAMANT®, extra-clear soda-lime silicate glass produced using the float procedure
- PARSOL®, tinted soda-lime silicate glass using the float procedure

LCA INFORMATION

Declared unit	1m² of MIRALITE® PURE on glass substrate PLANICLEAR® to be integrated in building, furniture or industrial application
Reference service life	30 years
System boundaries	Cradle to gate
Excluded lifecycle stages	Modules A4-A5, B1-B7, C1-C4, D
Cut-off rules	All significant parameters shall be included. According to EN 15804, mass flows under 1% of the total mass input; and/or energy flows representing less than 1% of the total primary energy usage of the associated unit process may be omitted. However, the total amount of energy and mass omitted must not exceed 5% per module. All inputs and outputs to the processes for which data is available were included in the calculation. No core processes were excluded. Particular care was taken to include materials and energy flows known to have the potential to cause significant emissions into air, water and soil related to the environmental indicators of the governing PCR.
Allocations	Allocations are based on glass surfaces (1m²). These allocations are only used for consumption and emission of the production plants. Allocation of background data (energy and materials) taken from the GaBi 8 pack37 databases is documented online at http://www.gabi-software.com/support/gabi/
Background data source	GaBi data not older than 10 years were used to evaluate the environmental impacts.
Software	Gabi 8 pack37

Reading note: In this document, the thousand separator and the decimal mark follow the International System; English version, *i.e* 1 234.56

LIFE CYCLE STAGES

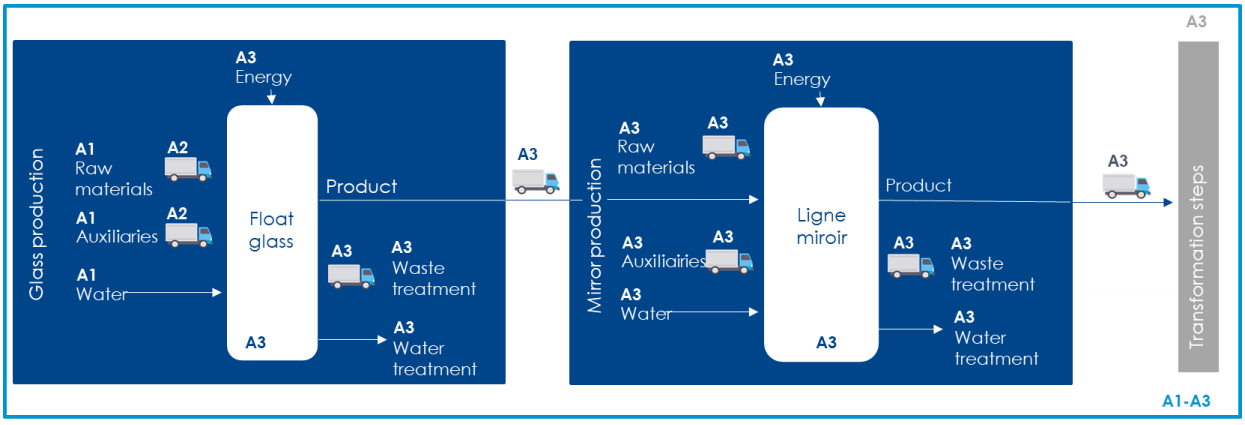

Figure 1 : Relevant LCA steps for MIRALITE®PURE. Steps in blue are declared in this EPD, steps in grey are not declared.

Production			Installation		Use phase							End-of-Life				Next product system
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Raw materials (extraction, processing, recycled material)premières	Transport to manufacturer	Manufacturing	Transport to building site	Installation into building	Use / application	Maintenance	Repair	Replacement	Refurbishement	Operational; energy use	Operational water use	Deconstruction / demolition	Transport to EoL	Waste processing for reuse, recovery or recycling	Disposal	Reuse, recovery or recycling potential
X	X	X	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA

Tableau 2 : Modules of the production life cycle included in the EPD (X = declared modules ; MNA = modules not assessed)

PRODUCTION STAGE A1-A3

Description of the stage: For mirror A1 to A3 represents the production of glass in the float and in the mirror line from cradle to gate.

The product stage includes the extraction and processing of raw materials and energies, transport to the manufacturer, manufacturing and processing of flat glass.

In conformity with EN 15804+A1, production steps include:
Extraction and processing of raw materials;

- Generation of electricity, steam and heat from primary energy resources, also including their extraction, refining and transport;
- Transportation up to the factory gate and internal transport;
- Manufacturing of ancillary materials or pre-products;
- Manufacturing of product;
- Processing up to the end-of-waste state or disposal of final residues including any packaging not leaving the factory gate with the product.

All glasses are transported in specific trucks (inloaders), with returnable racks.

Glass fabrication stages

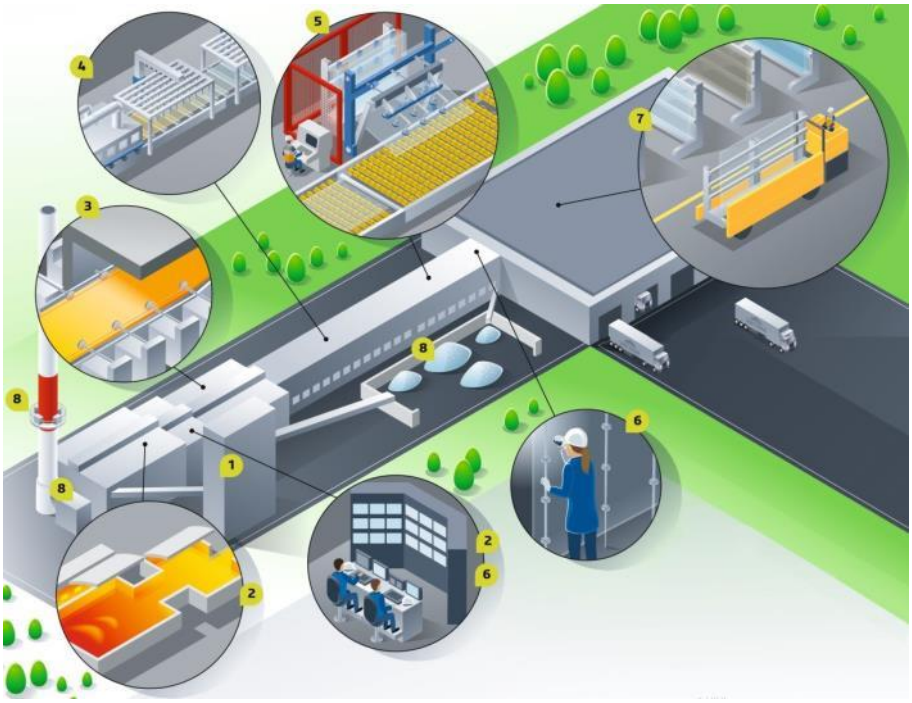

Figure 2: Flow diagram of the manufacturing process for flat glass.

1. BATCH MIXER: Mix of raw materials (silica, soda ash, lime, feldspar and dolomite) to which is added recycled glass (cullet) and other compounds depending on the desired color and properties.
2. FUSION FURNACE: Raw materials are melted at 1,550°C in a furnace.
3. FLOAT: The molten glass is fed into a bath of molten tin. The glass floats on this flat surface and is drawn off in a ribbon. Serrated wheels, or top rolls, pull and push the glass sideways depending on the desired thickness (from 2 to 19 millimeters).
4. ANNEALING LEHR: The glass is lifted onto conveyor rollers and passes through a controlled cooling tunnel measuring more than 100 meters in length. Approximately 600°C at the start of this step, the glass exits the lehr at room temperature.
5. CUTTING AND STACKING: The glass is automatically cut lengthwise and crosswise. The sheets of glass are raised by vacuum frames that then place them on glass stillage.
6. QUALITY: Automatic inspections and regular samples are taken to check the quality of the glass at each step in the glassmaking process.
7. STORAGE AND TRANSPORTATION: Stillages are placed on storage racks in the warehouse.
8. ENVIRONMENT: Use of recycled cullet, installation of pollution abatement systems and closed circuit management of water: every measure is taken to limit the consumption of energy, extraction of natural resources, production of waste and emissions into the atmosphere.

Mirror production stages

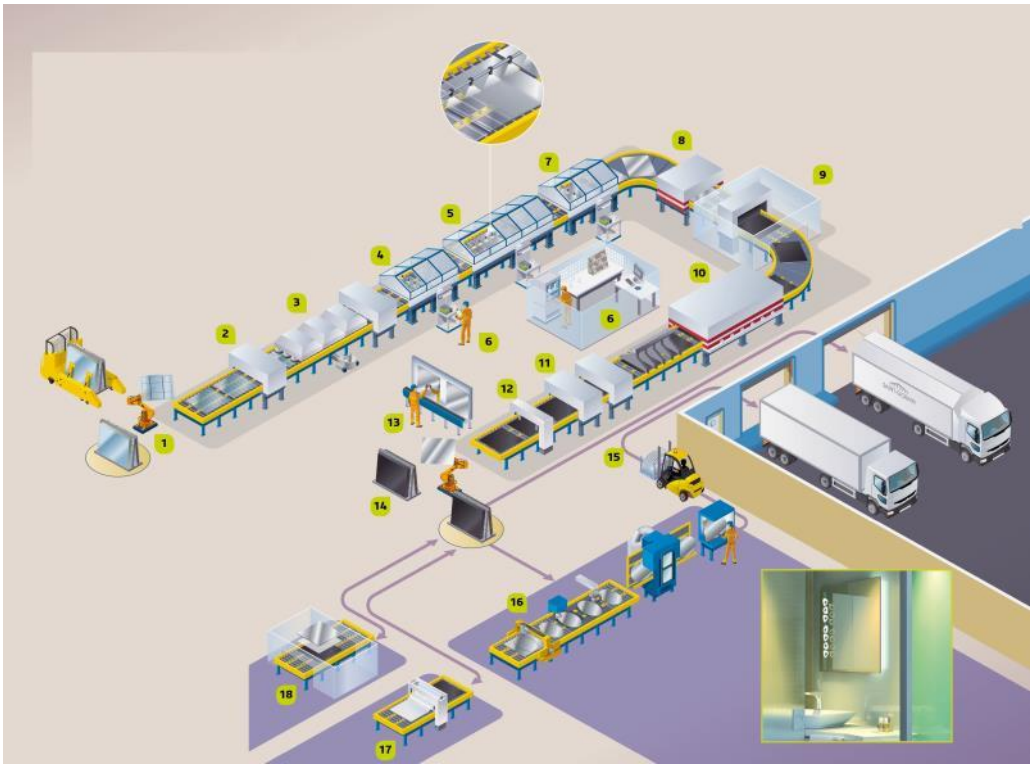

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Figure 3: Description de la ligne de production de miroirs.

1. Unstacking the glass sheets in all sizes (flint and extra-flint float glass, tinted,etc.)
2. Glass cleaning
3. Polishing with an abrasive powder, rinsing and washing
4. Surface activation with chemical solutions to promote the silver's adhesion to the glass
5. Deposit of a silver coating to make the glass reflective.
6. Process and product inspection at each step
7. Protective treatment and preparation to promote the paint's adhesion to the silver surface
8. Furnace drying and preheating
9. Application with a curtain coating machine of a layer of paint to protect the silver. Lead-free, water based paint is used for MIRALITE® PURE
10. Furnace drying and curing, then cooling
11. Final cleaning
12. Mirror marking to ensure its traceability
13. Final inspection
14. Stacking
15. Shipment.

CONTENT DECLARATION

All raw materials contributing more than 5% to any environmental impact are listed in the table below:

Components	Weight (in %)	Comments
Glass	More than 98%	CAS number 65997-17-3, EINECS number 266-046-0
Silver coating	Less than 0,1%	CAS 7440-22-4
Paint layer	Less than 2%	Water based paint with no added lead.

At the date of issue of this declaration, there is no “Substance of Very High Concern” (SVHC) in concentration above 0.1% by weight, and neither do their packaging, following the European REACH regulation (Registration, Evaluation, Authorization and Restriction of Chemicals).

ENVIRONMENTAL PERFORMANCE

The table below present the environmental impacts associated with the production of 1 square meter of SGG MIRALITE® PURE on PLANICLEAR® glass for all modules considered.
This is a Cradle-to-Gate EPD. The environmental impacts of all the other stages in the life cycle of SGG MIRALITE® PURE are not assessed (INA).

MIRALITE®PURE ON 3mm PLANICLEAR®

MIRALITE®PURE ON 3mm PLANICLEAR® - POTENTIAL ENVIRONMENTAL IMPACT

Parameters	Product stage	Construction process stage		Use stage							End-of-life stage			
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal
Global warming potential (GWP) - *kg CO_2 eq./UF*	1,03E+01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
The global warming potential of a gas refers to the total contribution to global warming resulting from the emission of one unit of that gas relative to one unit of the reference gas. carbon dioxide. which is assigned a value of 1.														
Ozone depletion (ODP) - *kg CFC 11 eq./UF*	7,11E-08	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Destruction of the stratospheric ozone layer which shields the earth from ultraviolet radiation harmful to life. This destruction of ozone is caused by the breakdown of certain chlorine and/or bromine containing compounds (chlorofluorocarbons or halons). Which break down when they reach the stratosphere and then catalytically destroy ozone molecules.														
Acidification potential (AP) - *kg SO_2 eq./UF*	7,12E-02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Acid depositions have negative impacts on natural ecosystems and the man-made environment incl. buildings. The main sources for emissions of acidifying substances are agriculture and fossil fuel combustion used for electricity production. heating and transport.														
Eutrophication potential (EP) - *kg $(PO_4)^{3-}$ eq./UF*	1,85E-02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Excessive enrichment of waters and continental surfaces with nutrients. and the associated adverse biological effects.														
Photochemical ozone creation (POCP) - *kg Ethene eq./UF*	4,02E-03	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Chemical reactions brought about by the light energy of the sun. The reaction of nitrogen oxides with hydrocarbons in the presence of sunlight to form ozone is an example of a photochemical reaction.														
Abiotic depletion potential for non-fossil ressources (ADP-elements) - *kg Sb eq./UF*	1,14E-04	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Abiotic depletion potential for fossil ressources (ADP-fossil Fuels) - *MJ/UF*	1,21E+02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Consumption of non-renewable resources. thereby lowering their availability for future generations.														

MIRALITE®PURE ON 3mm PLANICLEAR® - USE OF RESOURCES														
Parameters	Product stage	Construction process stage		Use stage							End-of-life stage			
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal
Use of renewable primary energy excluding renewable primary energy resources used as raw materials - *MJ/UF*	1,05E+01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of renewable primary energy used as raw materials - *MJ/UF*	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials - *MJ/UF*	1,05E+01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials - *MJ/UF*	1,26E+02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of non-renewable primary energy used as raw materials - *MJ/UF*	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) - *MJ/UF*	1,26E+02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of secondary material - *kg/UF*	9,87E-01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of renewable secondary fuels - *MJ/UF*	4,93E-10	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of non-renewable secondary fuels - *MJ/UF*	5,79E-09	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of net fresh water - *m^3/UF*	4,95E-02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

MIRALITE®PURE ON 3mm PLANICLEAR® - WASTE PRODUCTION														
Parameters	Product stage	Construction process stage		Use stage							End-of-life stage			
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal
Hazardous waste disposed - *kg/UF*	5,33E-07	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Non-hazardous (excluding inert) waste disposed - *kg/UF*	2,86E-01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Radioactive waste disposed - *kg/UF*	1,60E-03	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

MIRALITE®PURE ON 3mm PLANICLEAR® - OUTPUT FLOWS														
Parameters	Product stage	Construction process stage		Use stage							End-of-life stage			
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal
Components for re-use - *kg/UF*	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Materials for recycling - *kg/UF*	2,61E-01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Materials for energy recovery - *kg/UF*	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Exported energy. detailed by energy carrier - MJ/UF	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

MIRALITE®PURE ON 4mm PLANICLEAR®

MIRALITE®PURE ON 4mm PLANICLEAR® - POTENTIAL ENVIRONMENTAL IMPACT															
Parameters	Product stage	Construction process stage		Use stage							End-of-life stage			
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal
Global warming potential (GWP) - *kg CO_2 eq./UF*	1,30E+01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
The global warming potential of a gas refers to the total contribution to global warming resulting from the emission of one unit of that gas relative to one unit of the reference gas. carbon dioxide. which is assigned a value of 1.														
Ozone depletion (ODP) - *kg CFC 11 eq./UF*	7,11E-08	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Destruction of the stratospheric ozone layer which shields the earth from ultraviolet radiation harmful to life. This destruction of ozone is caused by the breakdown of certain chlorine and/or bromine containing compounds (chlorofluorocarbons or halons). Which break down when they reach the stratosphere and then catalytically destroy ozone molecules.														
Acidification potential (AP) - *kg SO_2 eq./UF*	8,43E-02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Acid depositions have negative impacts on natural ecosystems and the man-made environment incl. buildings. The main sources for emissions of acidifying substances are agriculture and fossil fuel combustion used for electricity production. heating and transport.														
Eutrophication potential (EP) - *kg $(PO_4)^{3-}$ eq./UF*	2,28E-02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Excessive enrichment of waters and continental surfaces with nutrients. and the associated adverse biological effects.														
Photochemical ozone creation (POCP) - *kg Ethene eq./UF*	4,78E-03	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Chemical reactions brought about by the light energy of the sun. The reaction of nitrogen oxides with hydrocarbons in the presence of sunlight to form ozone is an example of a photochemical reaction.														
Abiotic depletion potential for non-fossil ressources (ADP-elements) - *kg Sb eq./UF*	1,34E-04	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Abiotic depletion potential for fossil ressources (ADP-fossil Fuels) - *MJ/UF*	1,51E+02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Consumption of non-renewable resources. thereby lowering their availability for future generations.														

MIRALITE®PURE ON 4mm PLANICLEAR® - USE OF RESOURCES														
Parameters	Product stage	Construction process stage		Use stage							End-of-life stage			
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal
Use of renewable primary energy excluding renewable primary energy resources used as raw materials - *MJ/UF*	1,22E+01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of renewable primary energy used as raw materials - *MJ/UF*	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials - *MJ/UF*	1,22E+01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials - *MJ/UF*	1,58E+02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of non-renewable primary energy used as raw materials - *MJ/UF*	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) - *MJ/UF*	1,58E+02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of secondary material - *kg/UF*	1,32E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of renewable secondary fuels - *MJ/UF*	6,57E-10	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of non-renewable secondary fuels - *MJ/UF*	7,72E-09	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of net fresh water - *m^3/UF*	5,43E-02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

MIRALITE®PURE ON 4mm PLANICLEAR® - WASTE PRODUCTION														
Parameters	Product stage	Construction process stage		Use stage							End-of-life stage			
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal
Hazardous waste disposed - *kg/UF*	6,01E-07	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Non-hazardous (excluding inert) waste disposed - *kg/UF*	3,56E-01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Radioactive waste disposed - *kg/UF*	2,09E-03	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

MIRALITE®PURE ON 4mm PLANICLEAR® - OUTPUT FLOWS														
Parameters	Product stage	Construction process stage		Use stage							End-of-life stage			
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal
Components for re-use - *kg/UF*	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Materials for recycling - *kg/UF*	3,31E-01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Materials for energy recovery - *kg/UF*	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Exported energy. detailed by energy carrier - MJ/UF	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

MIRALITE®PURE ON 5mm PLANICLEAR®

MIRALITE®PURE ON 5mm PLANICLEAR® - POTENTIAL ENVIRONMENTAL IMPACT

Parameters	Product stage	Construction process stage		Use stage							End-of-life stage			
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal
Global warming potential (GWP) - *kg CO_2 eq./UF*	1,57E+01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
The global warming potential of a gas refers to the total contribution to global warming resulting from the emission of one unit of that gas relative to one unit of the reference gas. carbon dioxide. which is assigned a value of 1.														
Ozone depletion (ODP) - *kg CFC 11 eq./UF*	7,11E-08	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Destruction of the stratospheric ozone layer which shields the earth from ultraviolet radiation harmful to life. This destruction of ozone is caused by the breakdown of certain chlorine and/or bromine containing compounds (chlorofluorocarbons or halons). Which break down when they reach the stratosphere and then catalytically destroy ozone molecules.														
Acidification potential (AP) - *kg SO_2 eq./UF*	9,74E-02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Acid depositions have negative impacts on natural ecosystems and the man-made environment incl. buildings. The main sources for emissions of acidifying substances are agriculture and fossil fuel combustion used for electricity production. heating and transport.														
Eutrophication potential (EP) - *kg $(PO_4)^{3-}$ eq./UF*	2,71E-02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Excessive enrichment of waters and continental surfaces with nutrients. and the associated adverse biological effects.														
Photochemical ozone creation (POCP) - *kg Ethene eq./UF*	5,54E-03	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Chemical reactions brought about by the light energy of the sun. The reaction of nitrogen oxides with hydrocarbons in the presence of sunlight to form ozone is an example of a photochemical reaction.														
Abiotic depletion potential for non-fossil ressources (ADP-elements) - *kg Sb eq./UF*	1,54E-04	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Abiotic depletion potential for fossil ressources (ADP-fossil Fuels) - *MJ/UF*	1,82E+02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Consumption of non-renewable resources. thereby lowering their availability for future generations.														

MIRALITE®PURE ON 5mm PLANICLEAR® - USE OF RESOURCES														
Parameters	Product stage	Construction process stage		Use stage							End-of-life stage			
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal
Use of renewable primary energy excluding renewable primary energy resources used as raw materials - *MJ/UF*	1,38E+01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of renewable primary energy used as raw materials - *MJ/UF*	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials - *MJ/UF*	1,38E+01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials - *MJ/UF*	1,90E+02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of non-renewable primary energy used as raw materials - *MJ/UF*	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) - *MJ/UF*	1,90E+02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of secondary material - *kg/UF*	1,64E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of renewable secondary fuels - *MJ/UF*	8,21E-10	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of non-renewable secondary fuels - *MJ/UF*	9,65E-09	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of net fresh water - *m^3/UF*	5,91E-02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

MIRALITE®PURE ON 5mm PLANICLEAR® - WASTE PRODUCTION														
Parameters	Product stage	Construction process stage		Use stage							End-of-life stage			
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal
Hazardous waste disposed - *kg/UF*	6,69E-07	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Non-hazardous (excluding inert) waste disposed - *kg/UF*	4,26E-01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Radioactive waste disposed - *kg/UF*	2,59E-03	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

MIRALITE®PURE ON 5mm PLANICLEAR® - OUTPUT FLOWS														
Parameters	Product stage	Construction process stage		Use stage							End-of-life stage			
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal
Components for re-use - *kg/UF*	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Materials for recycling - *kg/UF*	4,00E-01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Materials for energy recovery - *kg/UF*	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Exported energy. detailed by energy carrier - MJ/UF	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

MIRALITE®PURE ON 6mm PLANICLEAR®

MIRALITE®PURE ON 6mm PLANICLEAR® - POTENTIAL ENVIRONMENTAL IMPACT

Parameters	Product stage	Construction process stage		Use stage							End-of-life stage			
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal
Global warming potential (GWP) - *kg CO_2 eq./UF*	1,84E+01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
The global warming potential of a gas refers to the total contribution to global warming resulting from the emission of one unit of that gas relative to one unit of the reference gas. carbon dioxide. which is assigned a value of 1.														
Ozone depletion (ODP) - *kg CFC 11 eq./UF*	7,11E-08	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Destruction of the stratospheric ozone layer which shields the earth from ultraviolet radiation harmful to life. This destruction of ozone is caused by the breakdown of certain chlorine and/or bromine containing compounds (chlorofluorocarbons or halons). Which break down when they reach the stratosphere and then catalytically destroy ozone molecules.														
Acidification potential (AP) - *kg SO_2 eq./UF*	1,10E-01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Acid depositions have negative impacts on natural ecosystems and the man-made environment incl. buildings. The main sources for emissions of acidifying substances are agriculture and fossil fuel combustion used for electricity production. heating and transport.														
Eutrophication potential (EP) - *kg $(PO_4)^{3-}$ eq./UF*	3,14E-02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Excessive enrichment of waters and continental surfaces with nutrients. and the associated adverse biological effects.														
Photochemical ozone creation (POCP) - *kg Ethene eq./UF*	6,30E-03	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Chemical reactions brought about by the light energy of the sun. The reaction of nitrogen oxides with hydrocarbons in the presence of sunlight to form ozone is an example of a photochemical reaction.														
Abiotic depletion potential for non-fossil ressources (ADP-elements) - *kg Sb eq./UF*	1,74E-04	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Abiotic depletion potential for fossil ressources (ADP-fossil Fuels) - *MJ/UF*	2,13E+02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Consumption of non-renewable resources. thereby lowering their availability for future generations.														

MIRALITE®PURE ON 6mm PLANICLEAR® - USE OF RESOURCES														
Parameters	Product stage	Construction process stage		Use stage							End-of-life stage			
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal
Use of renewable primary energy excluding renewable primary energy resources used as raw materials - *MJ/UF*	1,55E+01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of renewable primary energy used as raw materials - *MJ/UF*	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials - *MJ/UF*	1,55E+01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials - *MJ/UF*	2,22E+02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of non-renewable primary energy used as raw materials - *MJ/UF*	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) - *MJ/UF*	2,22E+02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of secondary material - *kg/UF*	1,97E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of renewable secondary fuels - *MJ/UF*	9,86E-10	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of non-renewable secondary fuels - *MJ/UF*	1,16E-08	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of net fresh water - *m^3/UF*	6,39E-02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

MIRALITE® PURE ON 6mm PLANICLEAR® - WASTE PRODUCTION														
Parameters	Product stage	Construction process stage		Use stage							End-of-life stage			
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal
Hazardous waste disposed - *kg/UF*	7,37E-07	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Non-hazardous (excluding inert) waste disposed - *kg/UF*	4,96E-01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Radioactive waste disposed - *kg/UF*	3,08E-03	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

MIRALITE®PURE ON 6mm PLANICLEAR® - OUTPUT FLOWS														
Parameters	Product stage	Construction process stage		Use stage							End-of-life stage			
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal
Components for re-use - *kg/UF*	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Materials for recycling - *kg/UF*	4,69E-01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Materials for energy recovery - *kg/UF*	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Exported energy. detailed by energy carrier - MJ/UF	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

MIRALITE®PURE ON 8mm PLANICLEAR®

MIRALITE®PURE ON 8mm PLANICLEAR® - POTENTIAL ENVIRONMENTAL IMPACT

Parameters	Product stage	Construction process stage		Use stage							End-of-life stage			
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal
Global warming potential (GWP) - *kg CO_2 eq./UF*	2,38E+01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
The global warming potential of a gas refers to the total contribution to global warming resulting from the emission of one unit of that gas relative to one unit of the reference gas. carbon dioxide. which is assigned a value of 1.														
Ozone depletion (ODP) - *kg CFC 11 eq./UF*	7,11E-08	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Destruction of the stratospheric ozone layer which shields the earth from ultraviolet radiation harmful to life. This destruction of ozone is caused by the breakdown of certain chlorine and/or bromine containing compounds (chlorofluorocarbons or halons). Which break down when they reach the stratosphere and then catalytically destroy ozone molecules.														
Acidification potential (AP) - *kg SO_2 eq./UF*	1,37E-01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Acid depositions have negative impacts on natural ecosystems and the man-made environment incl. buildings. The main sources for emissions of acidifying substances are agriculture and fossil fuel combustion used for electricity production. heating and transport.														
Eutrophication potential (EP) - *kg $(PO_4)^{3-}$ eq./UF*	4,01E-02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Excessive enrichment of waters and continental surfaces with nutrients. and the associated adverse biological effects.														
Photochemical ozone creation (POCP) - *kg Ethene eq./UF*	7,82E-03	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Chemical reactions brought about by the light energy of the sun. The reaction of nitrogen oxides with hydrocarbons in the presence of sunlight to form ozone is an example of a photochemical reaction.														
Abiotic depletion potential for non-fossil ressources (ADP-elements) - *kg Sb eq./UF*	2,14E-04	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Abiotic depletion potential for fossil ressources (ADP-fossil Fuels) - *MJ/UF*	2,74E+02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Consumption of non-renewable resources. thereby lowering their availability for future generations.														

MIRALITE®PURE ON 8mm PLANICLEAR® - USE OF RESOURCES														
Parameters	Product stage	Construction process stage		Use stage							End-of-life stage			
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal
Use of renewable primary energy excluding renewable primary energy resources used as raw materials - *MJ/UF*	1,88E+01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of renewable primary energy used as raw materials - *MJ/UF*	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials - *MJ/UF*	1,88E+01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials - *MJ/UF*	2,86E+02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of non-renewable primary energy used as raw materials - *MJ/UF*	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) - *MJ/UF*	2,86E+02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of secondary material - *kg/UF*	2,63E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of renewable secondary fuels - *MJ/UF*	1,31E-09	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of non-renewable secondary fuels - *MJ/UF*	1,54E-08	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Use of net fresh water - *m^3/UF*	7,34E-02	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

MIRALITE®PURE ON 8mm PLANICLEAR® - WASTE PRODUCTION														
Parameters	Product stage	Construction process stage		Use stage							End-of-life stage			
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal
Hazardous waste disposed - *kg/UF*	8,74E-07	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Non-hazardous (excluding inert) waste disposed - *kg/UF*	6,35E-01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Radioactive waste disposed - *kg/UF*	4,07E-03	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

MIRALITE®PURE ON 8mm PLANICLEAR® - OUTPUT FLOWS														
Parameters	Product stage	Construction process stage		Use stage							End-of-life stage			
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal
Components for re-use - *kg/UF*	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Materials for recycling - *kg/UF*	6,08E-01	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Materials for energy recovery - *kg/UF*	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
Exported energy. detailed by energy carrier - MJ/UF	0,00E+00	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

LCA RESULTS INTERPRETATION

Most of MIRALITE® PURE impacts are due to production of PLANICLEAR® 4mm (between 50 and 100% of contribution depending of impact type). It is coherent because glass is almost 98% of product mass.

During PLANICLEAR® 4mm production, two important sources of impact are detected: energy consumption for float process and extraction process of soda ash.

The use of silver in the reflective layer is in the origin of more than 80% of the abiotic depletion (ADP elements)

	Impacts environnementaux MIRALITE® PURE sur PLANICLEAR® 4mm	Unité
Global warming potential	1,30E+01	kg CO_2 eq./UF
Non-Renewable resources consumption [1] (ADP-fossile)	1,51E+02	MJ/UF
Energy consumption [2]	1,70E+02	MJ/UF
Water consumption [3]	5,43E-02	m^3/UF
Waste production [4]	3,58E-01	kg/UF

[1]: This indicator corresponds to the abiotic depletion potential of fossil resources.

[2]: This indicator corresponds to the total use of primary energy.

[3]: This indicator corresponds to the use of fresh net water.

[4]: This indicator corresponds to the sum of hazardous. non-hazardous and radioactive waste disposed.

HEALTH CHARACTERISTICS

Concerning the Indoor air quality, clear flat glass is an inert material that doesn't release any element.

Regarding the paint added on the glass:

- Zero aromatic solvents (xylene) (Report EUROFINS No. 392-2013-00040301).
- VOC measurements following ISO 16000 have been taken by EUROFINS. Total VOCs and Total formaldehyde after 28 days are strictly below 10 µg/m^3 (Report No. 392-2013-00040301). The emission of the tested product SGG MIRALITE PURE corresponds to the emission class A+ (highest ranking), of the French regulation on the labeling of product for construction or wall cladding or flooring and paint and varnish on their emissions of volatile pollutants (*Arrêté April 2011).*
- The lead concentration in the paint is below 40 ppm (Dry paint test following ISO 11885, take by SGS No. EV15-02041.001).

Additional Environmental Information

SAINT-GOBAIN'S ENVIRONMENTAL POLICY

Saint-Gobain's environmental vision is to ensure the sustainable development of its Activities, while preserving the environment from the impacts of its processes and services throughout their life cycle. The Group thus seeks to ensure the preservation of resources, meet the expectations of its relevant stakeholders, and offer its customers the highest added value with the lowest environmental impact.

The Group has set two long-term objectives: zero environmental accidents and a minimum impact of its activities on the environment. Short and medium-term goals are set to address these two ambitions. They concern five environmental areas identified by the Group: raw materials and waste; energy, atmospheric emissions and climate; water; biodiversity; and environmental accidents and nuisance.

Saint-Gobain's long term objectives:

	Non recovered waste (2010-2025): -50% Long-term: zero non-recovered waste
	Energy consumption: -15% (2010-2025) CO_2 emissions: -20% (2010-2025) Emissions of NOx. SO_2 and dust: -20% for each emissions category (2010-2025)
	Water discharge: -80% (2010-2025) Long-term: zero industrial water discharge in liquid form
	2025: promote the preservation of natural areas at Company sites as much as possible
	2025: all environmental events are recorded. registered and investigated

More information on our website: www.saint-gobain.com and our Registration Document.

RECYCLED MATERIALS

Recycled content: proportion (by mass) of recycled material in a product or packaging. Only pre-consumer and post-consumer materials shall be considered as recycled content.

- **Post-consumer material**: material generated by households or commercial, industrial and institutional facilities in their role as end-users of the product which can no longer be used for its intended purpose.
  In practice, in the case of flat glass, all material coming from glass recycling collection schemes falls under this category, i.e. glass waste from end-of-life vehicles, construction and demolition waste, etc.
- **Pre-consumer material**: material diverted from the waste stream during a manufacturing process. Excluded is reutilization of materials such as rework, regrind, or scrap generated in a process and capable of being reclaimed within the same process that generated it.
  In the case of flat glass, this waste originates from the processing or re-processing of glass that takes place before the final product reaches the consumer market. Pre-consumer waste flat glass is made of cut-off, losses during laminating, bending and other processing, including the manufacture of insulating glass units or automotive windscreens.

Cullet generated in the furnace plant and which is reintroduced into the furnace cannot be considered as pre-consumer recycled content, since there was never intent to discard it and therefore it would never have entered the solid waste stream.

Pre-consumer cullet	**~11%**
Post-consumer cullet	**< 1%**

In the future, Saint-Gobain Glass intends to continue the increase of recycled material in its products, especially when recycling building post-consumer cullet glass dismantling and recycling networks will be available in every country.

RESPONSIBLE SOURCING

(Required for BREEAM International new construction 2013 – MAT 03 Responsible sourcing)

All Saint-Gobain Glass Industry sites with a glassmaking furnace are ISO 14001 certified.

The Saint-Gobain Glass Industry site from the UK (Eggborough) has a BES 6001 certification, with a Very Good score.

All internal Saint-Gobain Glass quarries are certified ISO 14001 like, for example. SAINT-GOBAIN SAMIN (sand) in France. Many Saint-Gobain Glass raw material suppliers are certified ISO 14001. Our policy consists in encouraging the sourcing of raw materials extracted or made in sites certified ISO 14001 (or the equivalent).

For any other question / document / certification, please contact our local sales teams.

REFERENCES

EN 15804+A1. Sustainability of construction works – Environmental product declarations – Core rules for product category of construction products
ISO 14025. Environmental labels and declarations – Type III environmental declarations – Principles and procedures.
ISO 9050. Glass in buildings – Determination of light transmittance, solar direct transmittance, total solar energy transmittance, ultraviolet transmittance glazing factors
EN 1036. Glass in building – Mirrors from silver-coated float glass for internal use
PCR 2012:01 Construction products and construction services, version 2.31 2019-12-20
GPI 3.0 - General Program Instructions for the INTERNATIONAL EPD® SYSTEM