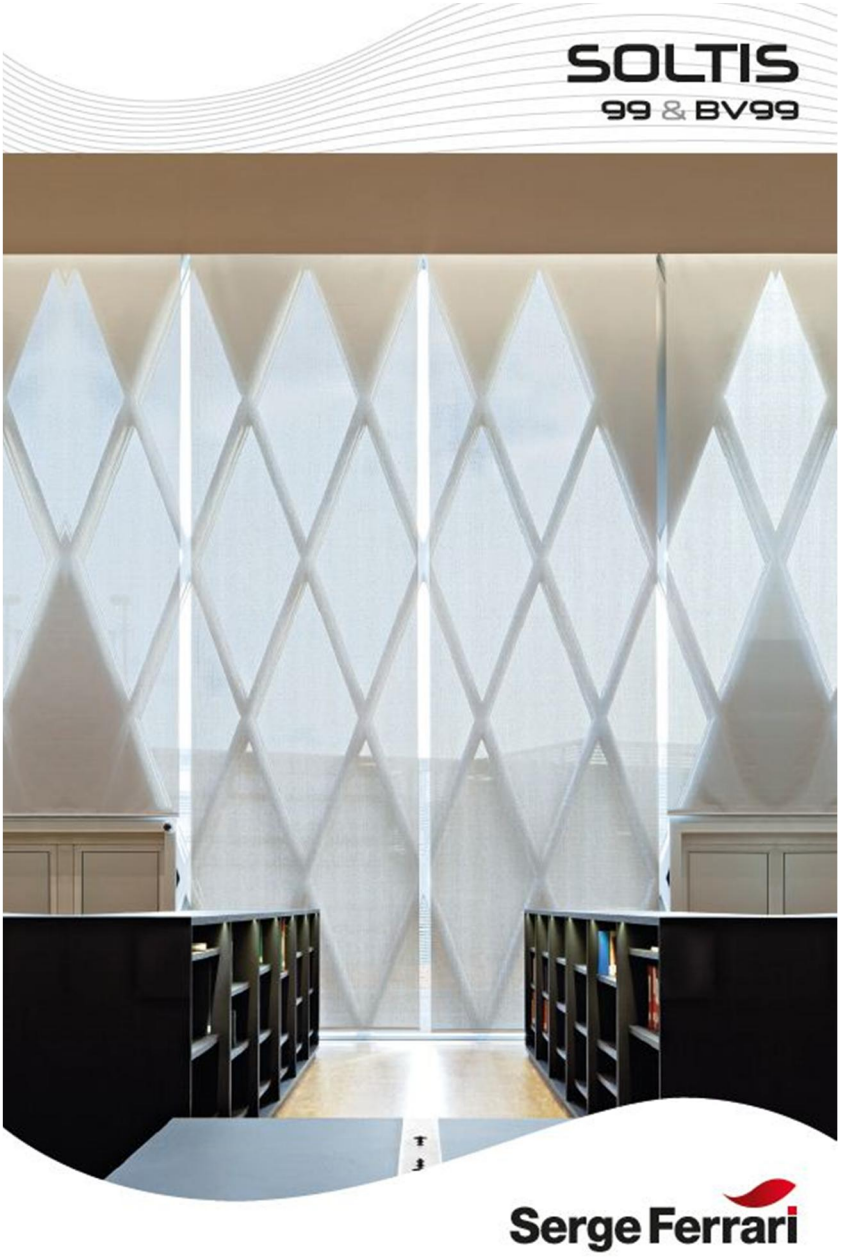
ENVIRONMENTAL PRODUCT DECLARATION

SOLTIS 99

TECHNICAL TEXTILE



A 100% recyclable, lightweight, composite screen providing light filtration and heat shielding as well as structural strength and long-term dimensional stability.

Serge Ferrari composite materials are specified by major international architects because their lightness, low physical density and performance characteristics all contribute to a sustainable approach to construction. These materials combine light and heat filter, translucence, lightness, strength and stability. In particular, Précontraint technology provides them with the best weight/performance ratio and long-term stability, enabling them to be fully in phase with mankind's natural resources challenge: to do better with less and for longer.

To promote clear, legible information, the Serge Ferrari Group has implemented the following decisions:

• To perform Life Cycle Assessments (LCAs) of all its products
• To make its LCAs available to all requesting parties
• To accompany its customers in performing their own full LCAs.

UL CERTIFIED ENVIRONMENTAL PRODUCT DECLARATION UL.COM/EPD

ENVIRONMENTAL PRODUCT DECLARATION

Serge Ferrari

SOLTIS 99
Technical Textile

According to ISO 14025 and EN 15804

This declaration is an environmental product declaration (EPD) in accordance with ISO 14025. EPDs rely on Life Cycle Assessment (LCA) to provide information on a number of environmental impacts of products over their life cycle. Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc. Accuracy of Results: EPDs regularly rely on estimations of impacts, and the level of accuracy in estimation of effect differs for any particular product line and reported impact. Comparability: EPDs are not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages, are based on different product category rules or are missing relevant environmental impacts. EPDs from different programs may not be comparable.

PROGRAM OPERATOR	UL Environment
DECLARATION HOLDER	Serge Ferrari
DECLARATION NUMBER	4786632360.103.1
DECLARED PRODUCT	Soltis 99 Technical Textiles
REFERENCE PCR	-PCR 2011, Part A Institut Bauen und Umwelt e.V., Königswinter (pub.): Product Category Rules for Construction Products from the range of Environmental Product Declarations of Institut Bauen und Umwelt (IBU), Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Background Report. September 2012 -PCR 2011, Part B: Requirements on the EPD for Technical Textiles
DATE OF ISSUE	December 11, 2015
PERIOD OF VALIDITY	5 years
CONTENTS OF THE DECLARATION	Product definition and information about building physics Information about basic material and the material's origin Description of the product's manufacture Indication of product processing Information about the in-use conditions Life cycle assessment results Testing results and verifications

The PCR review was conducted by:	IBU The Independent Expert Committee
This declaration was independently verified in accordance with ISO 14025 by Underwriters Laboratories ☐ INTERNAL ☒ EXTERNAL	Wade Stout, UL Environment
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	Thomas Gloria, Industrial Ecology Consultants

This EPD conforms with EN15804

SOLTIS 99
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According to ISO 14025

Product Definition

Product classification and description

Product Designation: SOLTIS 99

This Environmental Product Declaration covers the SOLTIS 99, a composite screen made out of a combination of Polyethyleneterephthalate (PET) and Polyvinylchloride (PVC). The basecloth is composed of high tensile, multifilament, polyester micro-cables. With its micro-ventilations, Soltis 99 regulates the heating effect of the sun and limits the greenhouse effect. These unmatched performances reduce the use of air conditioning and energy costs of the building. Soltis 99 also filters the light to insure visual comfort.

Soltis 99 is made with the exclusive technology Précontraint Serge Ferrari®: Patented worldwide, this technology involves keeping the composite under tension throughout the manufacturing cycle. It confers on the composite screens an outstanding dimensional stability, a long lasting mechanical strength and extreme flatness. The declared product has a weight of 290 g/m².

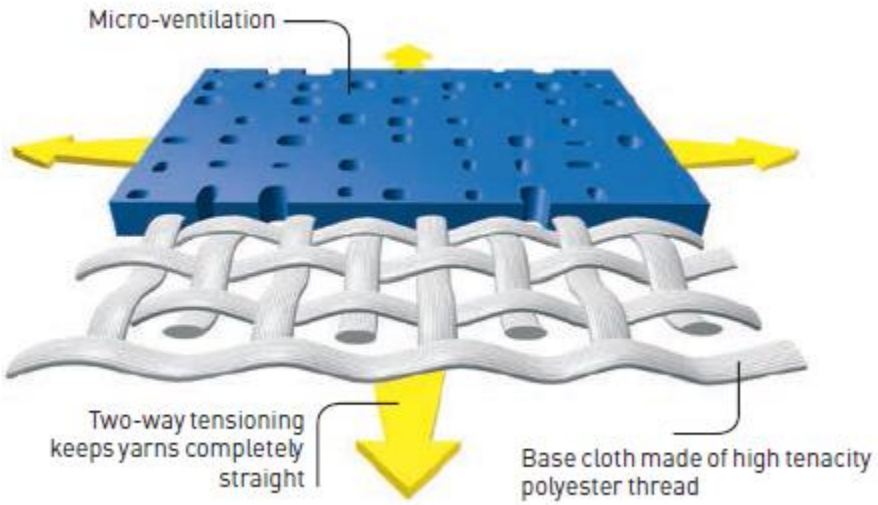

Figure 1 – Précontraint Serge Ferrari manufacturing technique

Application

The range of application for this product is exclusively interior solar protection. Blinds made with Soltis 99 are very adaptable and can be integrated in numerous ways into any building project. Examples of use include interior blinds, vertical blinds, interior sunshades for conservatory or glassroof. This product can be easily automated to provide adaptable shading performance.

ENVIRONMENTAL PRODUCT DECLARATION

SOLTIS 99
Technical Textile

According to ISO 14025

Manufacturer Data

Characteristic	Soltis 99	Norm
Dimensions		
Mass	290g/m²	EN ISO 2286-2
Thickness	0.32 mm	-
Width	177/267 cm depending on the colors	-
Roll Length	50/40 ml depending on width	-
Physical Properties		
Breaking Strength (warp/weft)	1600/1700 N / 50 mm	EN ISO 1421
Tear Resistance (warp/weft)	110/130 N	DIN 53363
Light fastness	Results available depending on the color	DIN EN ISO 105 B02
Light transmittance	between 3 and 21%	DIN EN 410
Solar Reflection	between 8 and 72%	DIN EN 410
Solar Absorption	between 11 and 89%	DIN EN 410
Solar transmittance	between 3 and 23%	DIN EN 410
Fire Resistance		
Classification	**M1**/NFP 92-507 | **B1**/DIN 4102 | BS 7837 | BS 5867 | **SCHWERBRENNBAR-Q1-TR1**/ONORM A 3800-1 | **CLASSE 1**/UNI 9177-87 | **M1**/UNE 23.727-90 | **VKF 5.2**/SN 198898 | 1530.3/**AS**/NZS | **G1**/GOST 30244-94 | **METHOD 1 and 2**/NFPA 701 | CSFMT19 | **CLASS A**/ASTM E84 | CAN ULCS109	
Euroclasses	**B-s2,d0**/EN 13501-1	
Management Systems		
Quality	ISO 9001	
Environment	ISO 14001	

Table 1 – Manufacturer Data

Accreditation

GREENGUARD Certification
Standard: UL 2818 - 2013 Standard for Chemical Emissions for Building Materials, Finishes and Furnishings
Number: 6325-410
Certification Status: Certified
Certification Period(s) 3/2009 - 3/2016

GREENGUARD Gold Certification
Standard: UL 2818 -2013 Gold Standard for Chemical Emissions for Building Materials, Finishes and Furnishings
Number: 6325-420
Certification Status: Certified
Certification Period(s) 3/2009 - 3/2016

Environment

SOLTIS 99
Technical Textile

According to ISO 14025

Material Content

Product composition

Component	Material	Mass %	Availability	Origin of raw materials
Micro-cable	PET	37.9%	Non-Renewable -- Limited	Overseas
Binder	PVC	62.1%	Non-Renewable -- Limited	Europe

Table 2 – Product Composition

Production of primary materials

PET – Polyterephthalate is produced either by reacting ethylene glycol with terephthalic acid or its methyl ester in the presence of an antimony catalyst. This reaction is performed at high temperatures as well as under vacuum to achieve the high molecular weights need to form useful fibers. This is then melt spun, where the product is melted and extruded through the spinaret allowing the form of the filament to be specified, before being drawn and then wound onto bales.

PVC – Polyvinylchloride is produced by polymerisation of vinyl chloride monomer (VCM).

Manufacturing

Production Process

The product is manufactured at two separate production sites: La Tour du Pin (France) and Tersuisse (Switzerland).

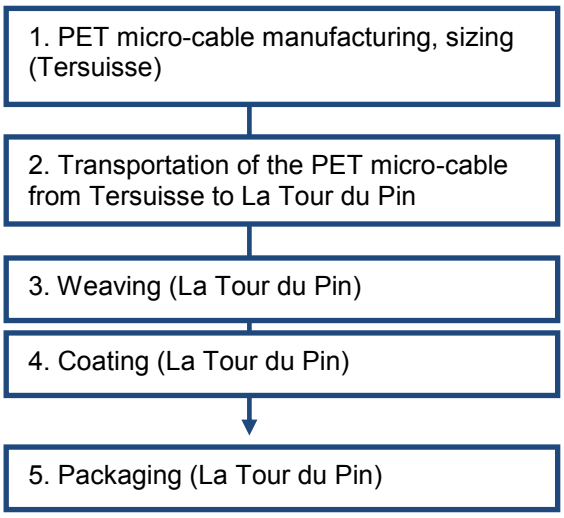

Figure 2 – Production Flow Chart

The quality management system is certified according to ISO 9001/2008. Serge Ferrari produces its own PET micro-cable at the production site of Tersuisse. The PET micro-cable is then transported to the production site of La Tour du Pin where the weaving, coating and packaging of the product takes place.

Production Waste

During the spinning process, 3% of the product is wasted. 100% of this waste is recycled.

The greatest loss of product is associated with the weaving process, where 7.6% is wasted. 100% of this waste is recycled.

At the packaging stage, 0.08% of the product is lost as waste. Of this waste, 30% is recycled via Texyloop, whilst the remaining 70% is too contaminated by adhesive tapes/staples and will be sent to landfill.

Environment and health during manufacturing

The environmental management system is certified according to ISO 14001/2004.

Regular measurements of air quality and noise levels are performed. The results are within the compulsory safety levels. In areas where employees are exposed to chemical products, prescribed safety clothes and technical safety devices are provided. Regular health checks are mandatory for employees of production sites.

Delivery and Installation

Delivery

The composite screens are delivered on rolls of different lengths, widths and colors. The amount can be determined by the customer. Standard rolls are available in either narrow (1.77x50m) or wide (2.67x40m) format.

Packaging

The product is rolled onto cardboard inner tubes, protected externally by cardboard boxes and then stacked on wooden pallets for delivery.

Installation

The scope of this study does not extend to the final installation due to the variation in projects and the vast range of applications and installation techniques.

Waste

During an average installation the manufacturer has indicated that approximately 20% of the product is wasted. As such, the module A5 of this study represents 20% of the total impacts upstream of the construction stage (A1-A4).

Use Stage

Reference Service Life (RSL)

The Reference Service Life for this product is 15 years. This is based on past experience of the manufacturer as well as preceding declarations (FDES – Fiches de Déclaration Environnementale et Sanitaire) published on the French public database INIES (www.inies.fr).

SOLTIS 99
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According to ISO 14025

Environment and health during use

The air emissions of Total Volatile Organic Compounds (TVOC) measured at 28 days (according to the NF EN ISO 16000 series) are less than 1000 µg/m^3.

Information about the labeling of construction and decoration products concerning their volatile pollutant emissions by Decree 2011-321 of 23 March 2011 and the order dated April 19, 2011:
- In terms of quantity of total volatile organic compounds emitted (TVOC), the Soltis 99 is in the class A +
- In terms of quality of emissions, Soltis 99 is in the class A +

Overall, the level of emissions in the indoor air of Soltis 99 is Class A +.

(Source: Test Report No. 392-2015-00170402 performed by Eurofins)

Moreover, the Soltis 99 screens are certified by GREENGUARD.

Regarding emissions to soil and water, no test results are currently available.

Extraordinary effects

Fire

See Manufacturer Data Table for Fire certifications.

Water

The declared product is suitable for outdoor use. The product shows good weatherability behaviour.

Mechanical destruction

The mechanical destruction of the declared product does not alter the chemical composition.

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According to ISO 14025

End of Life

Recycling phase

The recycling rate is 5% at the end of life. Additionally, 30% of the scraps from the conditioning step and 30% of the scraps from design step are recycled.

The company Serge Ferrari recycles the Soltis 99 screen through the recycling process of PVC composite materials named Texyloop®. It works with shredded waste composite materials. This process can produce two products: PVC (then injected in the Vinyloop® process) and regenerated PET micro-cables.

Definition of the stages of Texyloop® process:

- Collection and preparation of composite materials: the raw material used by the Texyloop® process consists of waste composite materials (production/installation waste or end of life screens) made of PVC coated polyester micro-cables. The collected composite materials are shredded before being sent to the site of Ferrara in Italy.
- Dissolution: composite materials are introduced with a solvent mixture in a dissolving tank filter that extracts the wet polyester micro-cable. At the end of this step, two products are obtained: the wet polyester micro-cable and the PVC-solvents mixture. This mixture is fed into the inlet of the decanter of the Vinyloop® process; wet micro-cables are baled and they gradually drip before being returned to the production site of Serge Ferrari at La tour du Pin.
- The PVC-solvents mixture is then integrated into the recycling process Vinyloop® where it undergoes a settling stage, precipitation and drying. This process produces a material similar to the original PVC compound.

Disposal

95% of the product is not recycled and is disposed of in a sanitary landfill. As a non-dangerous plastic construction product it falls under European Waste Code 17-02-03.

LCA: Calculation rules

Functional Unit

The functional unit is defined as:

"1 m² of a composite screen - SOLTIS 99 – during a Reference Service Life of 15 years and with a density of 290 g/m²."

	Value	Unit
Functional Unit	1	m²
Conversion factor to 1kg	3.448	-

System boundaries

The analysis of the product life cycle includes the production and transport of the raw materials, manufacture of the product and the packaging materials which are declared in modules A1-A3.

SOLTIS 99
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According to ISO 14025

A4 module represents the transport of the finished SOLTIS 99 to the installation site. The object of this LCA being the SOLTIS 99 screen and not the complete blind system, the installation stage is not included in the scope of the study. However, as the product must be converted to be used in an installation, the wasted product is taken into account.

Waste rates during the installation stage can differ depending on the installer and the project, but an average rate of 20% is considered in our case. The A5 module therefore represents 20% of the impacts from all stages upstream of the installation.

This LCA also includes data concerning the use and maintenance stages (B1 and B2). VOC emissions are taken into account during the use stage (B1) and the screen SOLTIS 99 requires maintenance (B2) consisting of cleaning with water and the maintenance product *Ferrari Clean* (maintenance schedule 0.64 x per year). During its use, SOLTIS 99 may have a certain moderating and controlling effect on the heating, cooling and lighting of the installation site. These effects have been excluded from the study.

The End-of-Life (EoL) stages are also considered. The transportation to the EoL disposal site is taken into account in the module C2. The majority of the product (95%) is sent to landfill at the end of its useful life (C4).

At the EoL stage, 5% of the product is recycled via the Texyloop process, developed by SERGE FERRARI. 30% of the scraps of the screen at the production step and 30% of the scraps at the installation step are also recycled with Texyloop. The potential benefit of the recycling process is calculated in the module D.

	Production Stage			Construction Process Stage		Use Stage							End-of-Life Stage				Next product System
	Raw material supply (extraction, processing, recycled material)	Transport to manufacturer	Manufacturing	Transport to building site	Installation into building	Use / application	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / demolition	Transport to EoL	Waste processing for reuse, recovery or recycling	Disposal	Reuse, recovery or recycling potential
Modules	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Accounted for:	X	X	X	X	X	X	X	MND	MND	MND	X*	X*	X*	X	X	X	X

*module has been considered but has no associated inputs/outputs, therefore does not appear in the results.

Cut-off criteria

The cut -off criteria considered are 1% of renewable and non-renewable primary energy usage and 1% of the total mass of that unit process. The total neglected input flows per module shall be a maximum of 5% of energy usage and mass.

For this study, all input and output flows have been considered at 100%, including raw materials as per the product composition provided by the manufacturer and packaging of raw materials as well as the final product. Energy and water consumptions have also been considered at 100% according to the data provided.

SOLTIS 99
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According to ISO 14025

Background data

For life cycle modeling of the considered product, all relevant background datasets are taken from the ecoinvent V3.1 Alloc Rec database. The life cycle analysis software used is SimaPro (V8.0.5), developed by PRé Consulting.

Data quality

The objective of this evaluation is to evaluate the environmental impacts generated by the product SOLTIS 99 throughout its entire life cycle. To this end, ISO 14040, ISO 14044 and EN 15804 have been met regarding the quality of data on different following criteria:

The time factor, the life cycle inventory data used comes from:

- Data collected specifically for this study on SERGE FERRARI sites. Data sets are based on 1 year averaged data (time period: January 2014 to December 2014).
- In the absence of collected data, generic data from the ecoinvent V3.1 Alloc Rec database. This is regularly updated and is representative of current processes (the entire database having been updated in 2014).

Geography:

- Data comes from production sites of SERGE FERRARI.
- The generic data comes from the ecoinvent database, representative of the European processes.

Technology - material shaping technologies are based on:

- SERGE FERRARI technologies used for the manufacture methods of the product.
- European technology in the case of use of generic data.

Allocations

The product is produced in two production sites. All data were provided by the producer of the product according to 1 m² of composite screen.

The assumptions relating to the EoL of the product are described in the section System Boundaries.

Comparability

A comparison of EPD data is only possible if all data sets to be compared have been generated according to EN 15804 and the building context - specifically the characteristics pertaining to product performance - are taken into account.

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LCA: Scenarios and additional technical information

The following information refers to the declared modules, is the basis for the calculations and can be used for further calculations. All indicated values refer to the declared functional unit.

Transport to the construction site (A4)

Name	Value	Unit
Liters of fuel (truck)	2.05E-03	l/100km
Transport distance (20%) Large Width (80%) Small width	703.1 706.1	km
Capacity utilization (including empty runs)	63	%
Gross density of products transported	906	kg/m^3

Installation in the building (A5)

Name	Value	Unit
Material Loss	20	%

Use (B1)

Name	Value	Unit
VOC emissions	4.44E-05	kg

Maintenance (B2)

Name	Value	Unit
Maintenance cycle	0.64	Cycles/year
Water consumption	1,92E-03	m^3
Detergent (Ferrari Clean)	2,3E-02	m^3

Reference Service Life

Name	Value	Unit
Reference Service Life	15	years

End of Life (C1-4)

Name	Value	Unit
Collected Seperately	2.90E-01	kg
Recycled	1.45E-02	kg
Landfill	2.76E-01	kg

Module D

See *Re-use phase*

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According to ISO 14025

LCA: Results

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: declared unit and product

Parameter	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP	[kg CO2-Eq.]	2,39E+00	2,46E-02	4,85E-01	-	4,70E-02	-	-	-	-	-	-	1,46E-03	-	2,26E-02	-1,90E-02
ODP	[kg CFC11-Eq.]	7,52E-07	4,61E-09	1,52E-07	-	3,24E-09	-	-	-	-	-	-	2,69E-10	-	7,63E-10	2,57E-09
AP	[kg SO2-Eq.]	1,25E-02	9,14E-05	2,53E-03	-	2,24E-04	-	-	-	-	-	-	5,94E-06	-	2,16E-05	-8,39E-05
EP	[kg (PO4)3- Eq.]	9,29E-03	1,44E-05	1,86E-03	-	2,06E-05	-	-	-	-	-	-	1,01E-06	-	6,77E-06	-7,92E-06
POCP	[kg Ethene Eq.]	3,33E-03	1,32E-05	6,69E-04	1,67E-05	4,59E-05	-	-	-	-	-	-	6,66E-07	-	6,26E-06	-2,94E-05
ADPE	[kg Sb Eq.]	2,59E-02	6,45E-08	5,18E-03	-	1,13E-07	-	-	-	-	-	-	4,84E-09	-	4,70E-09	-2,29E-08
ADPF	[MJ]	4,43E+01	3,84E-01	8,95E+00	-	1,44E+00	-	-	-	-	-	-	2,23E-02	-	7,16E-02	-5,87E-01
WP	[m3]	2,14E+00	8,73E-03	4,30E-01	-	1,76E-02	-	-	-	-	-	-	5,17E-04	-	2,62E-03	-7,14E-04
AP	[m3]	7,37E+02	3,39E+00	1,48E+02	4,04E-01	4,80E+00	-	-	-	-	-	-	2,01E-01	-	1,02E+00	-1,36E+00

Caption	GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non fossil resources; ADPF = Abiotic depletion potential for fossil resources

RESULTS OF THE LCA - RESOURCE USE: declared unit and product

Parameter	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	Unit	8,66E+00	5,43E-03	1,73E+00	-	1,84E-02	-	-	-	-	-	-	2,79E-04	-	2,10E-03	-9,49E-03
PERM	[MJ]	2,11E+00	-	4,22E-01	-	-	-	-	-	-	-	-	-	-	-	-
PERT	[MJ]	1,08E+01	5,43E-03	2,16E+00	-	1,84E-02	-	-	-	-	-	-	2,79E-04	-	2,10E-03	-9,49E-03
PENRE	[MJ]	5,54E+01	3,91E-01	1,12E+01	-	5,41E-01	-	-	-	-	-	-	2,27E-02	-	7,44E-02	-7,18E-01
PENRM	[MJ]	1,41E+01	-	2,81E+00	-	9,66E-01	-	-	-	-	-	-	-	-	-	-
PENRT	[MJ]	6,95E+01	3,91E-01	1,40E+01	-	1,51E+00	-	-	-	-	-	-	2,27E-02	-	7,44E-02	-7,18E-01
SM	[MJ]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSF	[kg]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NRSF	[MJ]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FW	[m3]	6,43E-02	8,02E-05	1,29E-02	-	3,19E-03	-	-	-	-	-	-	4,28E-06	-	7,76E-05	-2,47E-03

Caption	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non renewable primary energy resources used as raw materials; PENRM = Use of non renewable primary energy resources used as raw materials; PENRT = Total use of non renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: declared unit and product

Parameter	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	[kg]	1,59E-01	2,60E-04	3,18E-02	-	1,03E-03	-	-	-	-	-	-	1,40E-05	-	6,81E-05	-1,04E-03
NHWD	[kg]	3,00E+00	3,18E-02	6,07E-01	-	1,40E-02	-	-	-	-	-	-	1,16E-03	-	2,77E-01	2,00E-04
RWD	[kg]	4,13E-04	2,62E-06	8,33E-05	-	1,14E-06	-	-	-	-	-	-	1,52E-07	-	4,44E-07	5,28E-07
CRU	[kg]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MFR	[kg]	6,17E-02	-	1,23E-02	-	-	-	-	-	-	-	-	-	1,45E-02	-	-
MER	[kg]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EE	[MJ]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EE = Exported energy;

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According to ISO 14025

LCA: Interpretation

Primary energy demand

The total use of renewable primary energy resources as well as the total use of non-renewable primary energy is dominated by the mandatory modules (A1-A3). For the use of non-renewable energy resources, the production steps (A3 – 46%) are the greatest contributors, followed by the extraction and supply of raw materials (A1 – 35%). For the use of renewable energy resources, the greatest impact is caused by the production step (A3 – 75%), predominantly due to the material content of the product packaging.

Global warming potential (GWP)

GWP is dominated by the raw material supply stage (A1), especially Polyvinylchloride (PVC) and its components such as antimony and phtalic anhydride. Raw material supply accounts for 43% of the GWP for the mandatory modules, followed by the manufacturing stage with 37%.

Depletion potential of the stratospheric ozone layer (ODP)

The ODP is mainly influenced by the supply of raw materials (46%) and specifically by the production of PVC. This is mostly caused by the upstream supply chain due to the use of antimony as a component of the PVC. The manufacturing stage makes up over 36% of the ODP, largely because of the electricity used during the weaving.

Acidification potential (AP)

AP is largely dominated by the supply of raw materials (57%) due principally to the production of PVC and its components (antimony, anhydride phtalic). The manufacturing stage represents 23% of the acidification potential impacts.

Eutrophication Potential (EP)

EP is also dominated by the supply of raw materials (71%) with PVC the primary contributor. The A5 module accounts for approximately 17% of the EP (wasted product during the installation of the sunblinds).

Formation potential of tropospheric ozone photochemical oxidants (POCP)

POCP is dominated by the manufacturing stage (53%) because of the VOC emissions during the coating stage. The next greatest impact is that of the supply of raw materials (28%), especially due to the PVC.

Abiotic depletion potential for fossil and non fossil resources (ADPF/ADPE)

ADPF is largey caused by the supply of raw materials (A1 – 50%) and the production step (A3 – 30%). ADPE is almost entirely influenced by the supply of raw materials (A1 – 75%) and the instalation stage (A5 – 17%), specifically by the supply of PVC.

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According to ISO 14025

Requisite Evidence

Emissions to air

The following table shows the limits for the Greenguard Gold certification:

	GREENGUARD Certification	
	Indoor Air Quality	Greenguard Gold
TVOC (C6 – C12)	< 0.50 mg/m3	< 0.22 mg/m^3
Individual VOCs	< 1/10 TLV	< 1/100 TLV & < ½ CA chronic REL
Formaldehydes	< 0.0500 ppm	< 0.0073 ppm
Total Aldehydes	< 0.100 ppm	< 0.043 ppm
Total Phthalates	-	< 0.01 mg/m^3
Total Particles < 10µm	-	< 0.02 mg/m^3

Table 3 – Greenguard Certification figures

The product meets the requirements of both labels (see table), including regular checks by the GREENGUARD Institute.

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ENVIRONMENTAL PRODUCT DECLARATION

SOLTIS 99
Technical Textile

According to ISO 14025

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