

AWB Verosol[®]



METAL BACKED FABRICS FOR BLINDS - CONTROL HEAT, GLARE AND VISION



Cornelis Verolme - Inventor

THE HISTORY OF METAL BACKED FABRICS FOR BLINDS

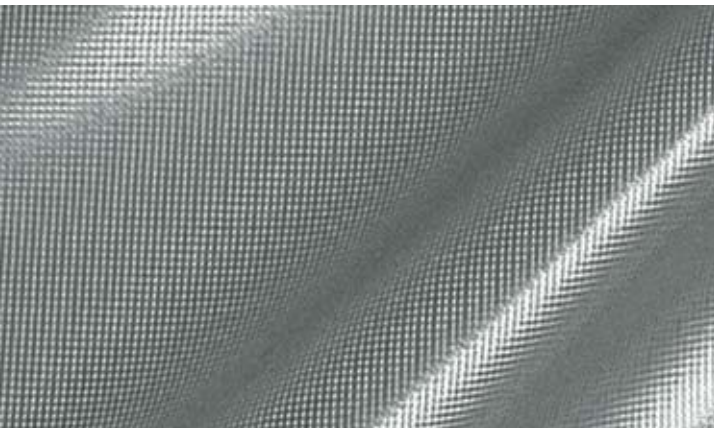
For over 40 years Verosol has been the world's leading supplier of technical fabrics for commercial buildings. Verosol's metal backed fabrics for blinds have been developed specifically to manage the effects of solar radiation - whilst preserving your view.

In the 1960's, Verosol developed the process of bonding an ultra-fine layer of reflective Aluminium Alloy, to textiles. This metal compound was then applied as a heat reflective backing for Polyester curtain fabric. In the 70's Verosol pleated blinds soon followed and in the 80's, Verosol vertical louvres were the choice of architects and designers. In the 90's technical fabrics like Trevira CS and common sunscreen became widely used. In response Verosol developed a selection of metal backed Trevira CS fabrics in a colour coordinated range of colours and transparencies. Verosol's most recent development is SilverScreen - a revolutionary high performance sunscreen fabric with metallised backing.

As fashion, Architectural design and construction technology has evolved, so too has Verosol.

Verosol now delivers a new generation of metal backed fabrics and blind systems with an internationally recognised reputation for quality, solar efficiency, flexibility and performance.

THE HISTORY OF METAL BACKED FABRICS FOR BLINDS



Verosol metallised backing



Commissioning of the vacuum bonding chamber 1965



Original vacuum bonding chamber - still in commission



Pre-treatment and coating station

In 1965, the first metal to textile vacuum bonding chamber was commissioned in Eibergen, The Netherlands. Developed by Cornelis Verolme, the process of bonding metal to a textile delivered a transparent, high performance sunscreen fabric. The original vacuum bonding chamber pictured above, is still in commission 40 years later and offers unparalleled performance worldwide.

In 1999 Verosol began the process of developing a second metal to textile vacuum bonding chamber capable of managing fabric up to 2400mm in width. This new chamber was commissioned in 2000 and is the only dedicated, metal to textile vacuum bonding chamber in the world, developed specifically to bond metal backing to polyester, Trevira CS and sunscreen fabrics. Each of these fabrics are tried and proven in the blind making process and, the 2400mm width allows most window panels to be covered in one fabric drop. Furthermore, this completely in-house process is exclusively available to licenced Verosol fabricators. All other blind fabricators subcontract the metallisation process to companies specialising in high volume metallisation of chip packets, juice cartons and cigarette packaging. Evidence strongly suggests that the process and quality demands of metallising textiles for blinds, are uniquely understood by Verosol.

Lastly, Verosol is the only company in the world to provide complete and accredited metallisation of fabrics for blinds.



Microscopic inspection of metal backing



New vacuum bonding chamber - Eibergen The Netherlands



THE BENEFITS OF METAL BACKED FABRICS FOR BLINDS

Verosol fabrics for blinds provide unparalleled heat and glare control at the window - whilst preserving the view. They are the most effective range of solar control blind fabrics available and offer architects, specifiers and building managers the following benefits:

1. Savings in the capital cost of glass.
2. Savings in the capital cost of air-conditioning.
3. Savings in the running cost of air-conditioning.
4. Improved occupant comfort and safety.
5. Design flexibility.
6. A reduction in the production of greenhouse producing gases.

SAVINGS

ENERGY SAVINGS

Controlling the temperature inside a building is a major ongoing expense. Keeping the work place cool in Summer and warm in Winter has become a balancing act for Architects, Mechanical & Electrical Engineers, building owners and managers.

In Summer there are three significant sources of heat affecting all commercial property; direct solar radiation, human beings who themselves generate heat and office equipment. In Winter, heat loss through the window becomes an issue especially in cooler climates. The two charts to the right indicate just how effective Verosol metal-backed blind fabrics are in both Summer and Winter when compared with 6mm and solar control glass.

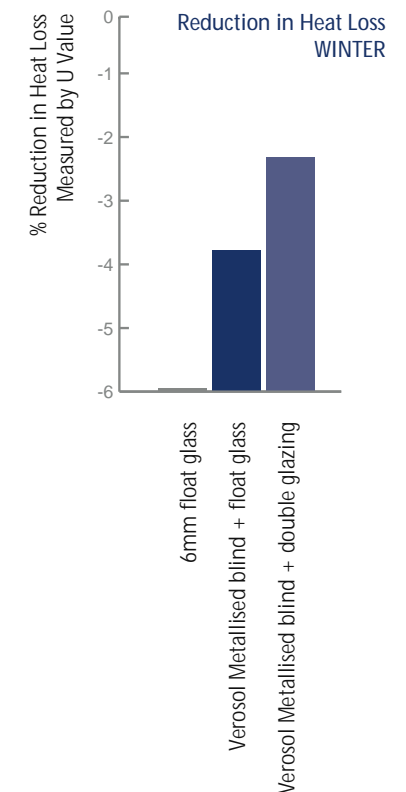
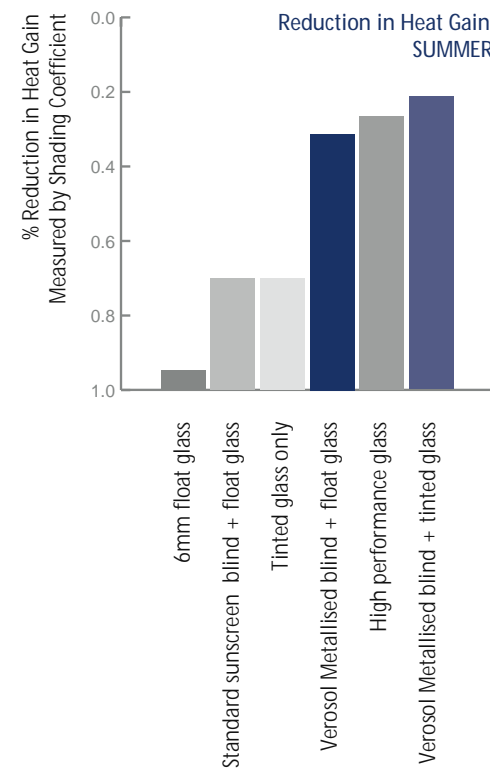
High performance glass and air conditioning are designed to keep people comfortable and productive - especially at the perimeter zones. The expense associated in terms of both capital and running costs is enormous. Verosol metal backed fabrics for blinds can help to reduce these costs in several ways:

1. Verosol allows glass of a lower specification to be fitted.
2. Verosol allows air-conditioning of lower specification to be fitted.
3. Verosol provides perimeter zone support to air conditioning - reducing running costs in both Summer & Winter.

The resulting energy savings mean that less greenhouse gas including CO₂ is produced; a worldwide objective of the Kyoto Protocol. The production of CO₂ is measurable and can be estimated at Verosol's online 'Savings calculator'. For details simply visit www.silverscreen-fabrics.com/content/savings_calculator then follow the prompts.

Architects, Engineers, specifiers, building owners and managers now have a high performance decorative window covering, which allows them to make informed decisions about glass and air-conditioning. Decisions that impact upon construction costs, running costs and the environment.

The Summer table is based on the use of 812 Semi transparent fabric - refer to the Glossary for definitions.





SAVINGS

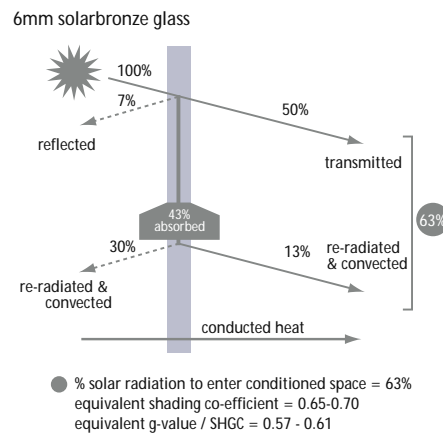
HEAT CONTROL

Fact 1. There is arguably no other single factor in a building's heat load, that is as predictable and manageable as direct solar radiation.

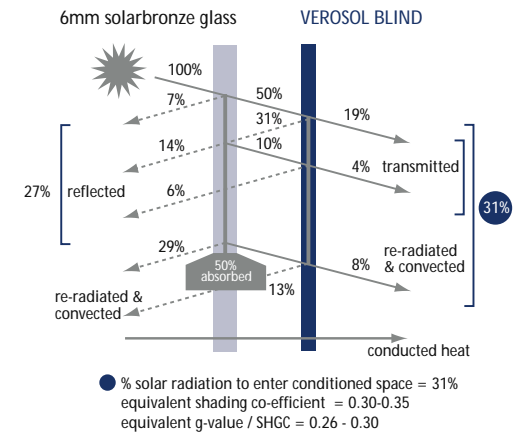
Fact 2. Verosol metal backed blind fabrics provide measurable heat control at the window.

Direct solar radiation or sunlight on a facade, generates interior heat loading via transmission through the glass, absorption by the glass, absorption by the glazed framing, absorption by window furnishings and finally absorption by people and office furnishings. At this point, the perimeter zoned air-conditioning has to work hard to manage the peak load. Verosol metal backed fabrics on the other hand reflect solar radiation and perform predictably - independent of colour. As a result, Engineers are able to calculate different models based on Verosol, glass and air-conditioning in order to achieve significant capital and running cost savings.

Without Verosol: 63% radiation conducted



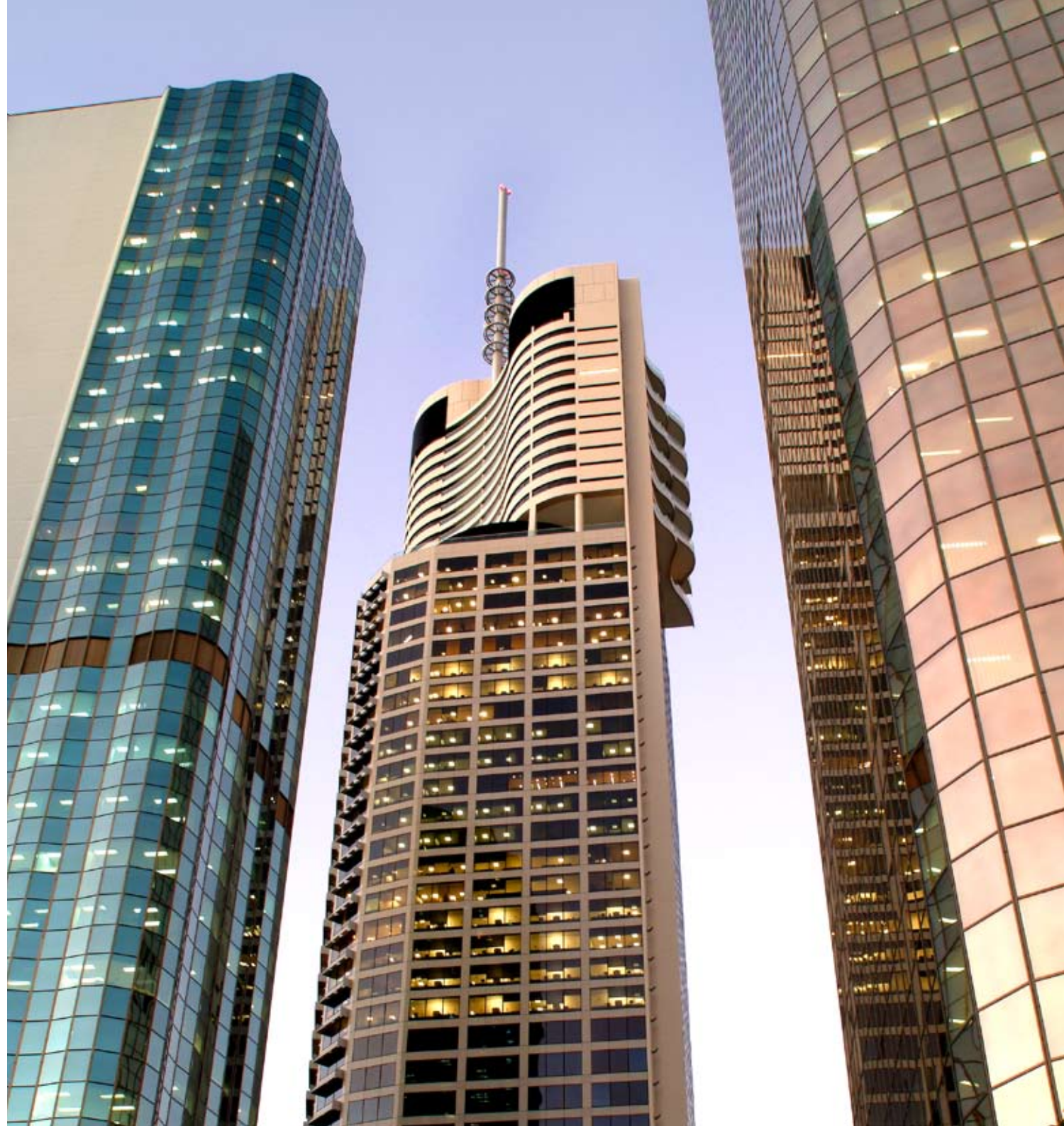
With Verosol: 31% radiation conducted



With Verosol blinds fitted, occupants can dramatically reduce the level of incoming solar radiation in the work place by simply lowering the blinds. Or, for greater control, sophisticated building management systems can automatically lower motorised blinds when an increase in the solar load is sensed.

Verosol, metal backed fabrics in combination with lightly tinted 6mm glass, yield a better shading coefficient / g-value / SHGC than any combination of high performance glass and common dark colour screen blind. Currently, the majority of commercial window coverings are dark in colour because they provide better glare control and vision out. The down side to this is that dark colours absorb significantly more heat than light colours. This also means the glass and air conditioning specifications have to cater for the inefficiencies of the blinds. However with Verosol, metallised fabrics, performance is not colour dependant - the blinds actually contribute to the management of the building system.

Therefore, Verosol saves money at the time of construction and in ongoing running costs by providing predictable heat control, independent of colour.



SAVINGS

CAPITAL COST SAVINGS - GLASS

Fact 1. High performance glass alone does not manage all the effects of solar radiation and is an expensive option.

Fact 2. Verosol metal backed fabric blinds in combination with less expensive low performance glass provide an effective solution to the problem of solar radiation at the window.

Over the years a number of buildings have been designed using high performance / reflective glass with the view that the glass alone would overcome the problem of direct solar radiation. The promised performance of the glass and monolithic glazing came together as a confluence of design and technology. Unfortunately, in practice - glass alone is not a solution to all the effects of direct solar radiation. As a result, Architects have responded with new and creative ways of dealing with the unwanted effects of sunlight on a building's facade, including the use of Verosol's metal backed fabrics for blinds.

In support of this, Verosol has developed a range of internal blind fabrics that allow Architects and Builders to save in relation to capital cost of glass, whilst decoratively treating windows. The evidence clearly indicates that Verosol blinds and a low performance glass - out perform high performance glass and common screen fabrics. As a result, the glazing specification can be re-rated accordingly, yielding measurable savings across the board. For internationally rated specifications and detailed comparisons, turn to the Technical Data section of this brochure.

It has been established that the majority of windows need a blind. With Verosol you can decorate a window, manage the effects of solar radiation and save on the capital cost of expensive glass.



SAVINGS

EXTERIOR SHADING DEVICE EFFICIENCY

Creative Architectural design, new materials and methods of fenestration engineering and construction, have led to the growing use of external shading devices. These devices can be both attractive and effective during times of peak - solar radiation loading. From simple awning style devices on Northern facades to elaborate fixtures on the West, their general performance is predictable because the movement of the sun is constant within its cycle. However, unless exterior devices are adjustable, they may only respond to the sun at times of peak load. This suggests that for much of the time they are functionally limited, allowing heat and glare to enter the work place. At these times, the issues of occupant comfort, air-conditioned space etc, become important considerations.

Exterior shading systems also experience issues in relation to maintenance, wind noise / damage and the loss of clear vision out. Furthermore, they may actually increase the consumption of energy in Winter used to heat a building, because they obstruct welcome sunlight. With Verosol blinds fitted internally, Architects and builders are able to re-think the use of exterior shading devices. Verosol blinds provide heat and glare control with outstanding, measurable insulation against heat loss in Winter.

The use of exterior shading devices in smart new-generation buildings is a logical response to the ongoing problem of solar radiation. However, where the limitations of exterior shading devices and glass converge, Verosol has a solution. Verosol's proven performance and flexibility provide a decorative solution to the problems of heat gain in Summer and heat loss in Winter. From transparent weaves which allow occupants to enjoy their view without uncomfortable levels of glare to opaque, room darkening fabrics; Verosol's performance is independent of the interior colour selected.

Fact 1. Illumination at the window can vary due to weather and season, ranging between 3000 Lux and 100000 Lux. It is an absolute necessity to be able to reduce the light / glare on bright sunny days.

Fact 2. Static glass solutions alone do not overcome glare problems.

Fact 3. Verosol's efficiency at the window allows Architects and engineers to re-think the nature and cost of exterior shading devices.

REDUCED RISK OF THERMAL FRACTURE

Thermal fracture / glass cracking is usually a result of partial sunlight and partial shading on a glass panel producing tension within a pane. It can be influenced by the colour of the glazing units, the method of installation, residual tension within the glass and the way the glass is cut, stored etc. Worldwide experience suggests that the incidence of thermal fracture in properly glazed structures is very low. The technology and mechanics of multistorey glazing seems to be sorted out. Periodically however, the suggestion is made that window coverings can contribute to thermal fracture of glass and Verosol actively refutes this claim. Verosol metal backed fabrics offer a uniform, cool and lightly reflective finish at the glass.

Fact 1. Verosol metal backed blinds do not impact upon thermal fracture of glass.

Fact 2. Verosol's uniform metal backing is lower in temperature at times of peak solar radiation than dark coloured, common screen blind fabrics and dark coloured glazing units.

Fact 3. The Worldwide incidence of thermal fracture of glass is extremely low - glass suppliers must be able to meet the existing standards.

SAVINGS

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OCCUPANT COMFORT & SAFETY

VISION OUT

Visual contact with the outside world whilst at work is important and desirable. Typically, the offices with views are the most sort after and prestigious. It's true to say that people attach value to being able to see the weather, streetscape, skyline and just about anything that relates back to open spaces, outside. In addition to this, vision out the window is proven to have a positive effect on work productivity. EU Directive 90/270/EEC underlines the importance of this by prescribing that visual contact must be possible. And, whilst these European standards have not yet reached Australian shores it is logical to conclude that principles behind them apply locally.

Verosol's transparent blind fabrics like 816, 812 & SilverScreen allow occupants of window offices to see out. Verosol's unique metal backing actually makes the Trevira CS yarns of 816 & 812 virtually non-transparent, thereby reducing diffused light. No other range of open weave, transparent fabrics deliver both vision out and high performance shading at the window, independent of colour.

Fact 1. With Verosol metal backed blinds, people can connect with their outside environment without disrupting the management of air-conditioned space.

GLARE CONTROL

Glare control at the window is another significant difference Verosol makes in commercial buildings. Balancing glare control, vision out and visual comfort is best achieved by selecting from Verosol's 5 different fabric weaves. These weaves range from transparent to opaque and consistently provide lower light transmission, which in turn prevents diffused radiation.

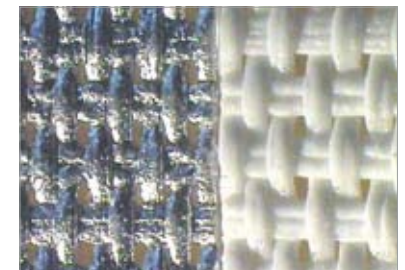
Verosol's measurable glare performance means lightly tinted glass can be specified for buildings. This further improves vision out, colour rendering and work place ambience. In addition, Verosol metal backed fabrics reduce eyestrain at the window by reducing the level of contrast in illumination, between the window and interior lighting.

For the optimal balance between glare and vision we suggest Verosol's revolutionary new SilverScreen fabric. With a luminous transmittance of 5% and an openness factor of 4%, it is the only screen fabric providing outstanding vision through and excellent heat control - independent of the interior colour.

Glare control and interior colour rendering are another significant relationship affecting the work place and work environment. Heavily tinted glass used to manage glare has a direct impact upon the colour of the light transmitted. Similarly, many window furnishings transmit the colour or hue of the dyed yarn. With Verosol, the issue of colour rendering is minimised independent of the colour selected.

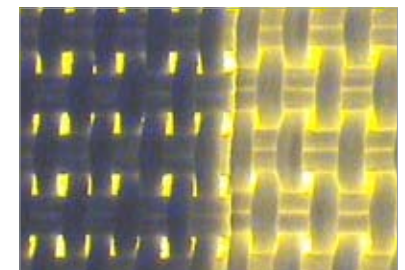
Fact 1. Verosol metal backed blind fabrics provide a high level of glare control at the window - refer to the SilverScreen specification for details.

Microscopic view of fabric



**WITH METAL
BACKING**

**WITHOUT METAL
BACKING**



*Reduced luminous transmission, improved
colour rendering*



OCCUPANT COMFORT & SAFETY

FLEXIBLE CONTROL

The entire range of Verosol metal-backed fabrics for blinds can be raised or lowered by hand or automatically via the buildings management system. In general people want to preserve their view and enjoy natural light; but when sunlight is flooding in, Verosol blinds become an elegant and practical solution with fingertip control.

Fact 1. Verosol blinds can be controlled by hand, motor or building management system.

INCREASED SAFETY - FLAME RETARDANCY

Verosol offers a selection of four flame retardant fabrics each with the unique metallised backing. These FR fabrics comply with Australian Standard 1530.2 / 3 which is important from both a safety and liability point of view.

Verosol's advanced vacuum bonding chamber is able to accommodate a wide range of Trevira CS and PVC coated fibreglass fabrics. Trevira is the World's leading polyester fibre manufacturer in the segment of flame retardant fabrics. Under the brand Trevira CS, fibre polymer with in-built flame retardant properties (via the phosphorous compound which are a part of the macro molecular chain) are produced. As a result, Trevira CS meets all major flammability standards world wide including M1 cruise ship requirement (F,E,P) via its' 3 flame retardant mechanisms:

1. Trevira CS melts away from the flame, absorbing ignition energy.
2. Trevira CS fibres retract from intense heat and flame without dripping.
3. Trevira CS flame retardant groups quench reactive species so chain reaction cannot propagate ie: it is self-extinguishing.

These characteristics eliminate the likelihood of flames leap frogging to other possible points of ignition. Furthermore, Verosol's Trevira CS metal backed blind fabrics are inherently flame retardant for the life of the fibre. In comparison, chemically flame retardant fabrics experience reduced FR performance through wear and tear, cracking, flaking, bending, normal ageing and most significantly with washing.

Verosol takes the issue of fire safety seriously and offers 4 different high performance, inherently flame retardant fabrics to Architects and Specifiers;

- . 816 - transparent fabric
- . 812 - semi transparent fabric
- . 878 - non transparent fabric
- . SilverScreen

DESIGN FLEXIBILITY

UNIFORM INTERIOR APPEARANCE

Verosol's metal backed fabrics open up the interior colour co-ordination story for Architects and Interior Designers. With Verosol, interior design considerations like the colour of the blinds, can be considered apart from the issue of regulating heat and glare.

Verosol offers 4 levels of transparency / openness, in a common range of 15 colours. This means fabrics of different performance can be used on different facades in the same colour.

The result, a tailored performance to suit the aspect / solar gain and, a co-ordinated colour story at the window.

Where the look of a screen fabric is desirable, SilverScreen is available in 5 colours and, even in the case of the dark colours, high performance is assured.

Fact 1. Verosol allows designers to mix and match the blinds with the interior colour story.

Fact 2. Verosol allows designers to mix and match the blinds without compromising visual and thermal comfort.

Fact 3. With Verosol, fabrics of different transparency / openness can be used on different facades in the same colour.

UNIFORM EXTERIOR APPEARANCE

Fact 1. Verosol's metal backed blind fabrics open up the interior colour co-ordination story without creating a patch work quilt appearance from the street.

All Verosol metal backed blinds look virtually identical from outside irrespective of the interior colour or fabric openness selected. This means that buildings no longer need to have floor after floor of identically coloured blinds fitted. Specifiers and tenants can now select colours to suit their individual interior fit-out without de-regulating the control of heat and glare.

Fact 1. From outside given lightly tinted or clear glass, all Verosol metal backed fabrics appear uniformly off-white.



ENVIRONMENTAL RESPONSIBILITY

Verosol products are manufactured with an environmentally responsible outlook. The application of the metallised backing at Verosol's Dutch vacuum-bonding facility, is at the forefront of legislation concerning sustainable development and manufacturing. Furthermore, Verosol's Trevira CS & Polyester fabrics meet stringent European standards in regard to the following:

- the colouring of fabrics without the use of dye baths
- the use of as few toxic and non-degradable materials as possible in the production of fabric
- the use of non-toxic chemicals in the production of its flame retarded fabrics, no lead or heavy metals
- Verosol also holds the Oeko-Tex Standard 100 certificate for its products

In addition to this, the Verosol organisation worldwide is committed to providing a product that will reduce the production of greenhouse gases. Verosol's savings calculator demonstrates how the use of Verosol metal backed fabrics can prevent thousands of kilograms of CO₂ being produced in air-conditioning running cost savings alone. To estimate possible reductions in CO₂ emissions simply visit www.silverscreen-fabrics.com/content/savings_calculator

Green planet considerations are a Verosol priority.



TECHNICAL DATA

INTRODUCTION

This section of the brochure has been developed with Architects, Engineers, specifiers and builders in mind. It consists of a wide range of fabric specifications and chart test results. The tests were conducted by Australian and International agencies to recognised standards. The specifics of the testing agencies and the standards are noted on each specification for verification purposes.

Each fabric is tested for integrated thermal and optical properties, yarn composition, colour fastness, noise reduction and flame retardancy. As all 5 fabrics tested are metal backed - adhesion, retention and corrosion resistance of the backing is also measured. Each specification also incorporates graphic images in relation to flame retardancy, system / blind types and transparency, for simplicity. Specialised testing has been undertaken in relation to SilverScreen fabric due to the attractive nature of this new, worldwide release.

In general the regime of testing is common throughout with minor variations eg: 812 is tested for fabric pleat retention - SilverScreen is not tested in this way as it is a roller blind fabric only.



SILVERSCREEN The revolutionary approach to sunscreen fabrics

In recent years there has been a worldwide trend towards the use of sunscreen fabrics in roller blinds. These PVC coated fibreglass sunscreen fabrics are woven on wide looms and are therefore able to accommodate large expanses of glass. Whilst they offer a measure of solar protection, and work well with roller blind systems; there is an expensive trade off between vision out and colour. Specifically, for maximum vision out, dark heat absorbing colours must be selected.

In 2005, Verosol perfected the process of vacuum bonding an ultra-fine metallised backing to PVC coated woven fibreglass / sunscreen fabric - the result is SilverScreen. SilverScreen allows architects and designers to specify a dark coloured screen fabric to maximise vision out and glare control, without sacrificing performance. Specific testing of SilverScreen versus common screen fabrics demonstrates the following:

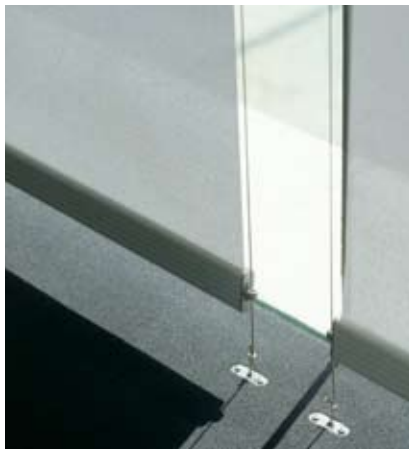
- SilverScreen can be used in dark colours without compromising occupant comfort or performance.
- SilverScreen allows aesthetic decisions like interior colour and vision out to be made independent of solar and optical performance.
- Architects, Engineers and builders who value vision out, no longer have to compensate with expensive high performance glass and/or air-conditioning in order to manage the heat load.

COMPOSITION

SilverScreen is constructed from hard wearing – flame retardant, PVC coated fibreglass yarn, back-coated by Verosol with an ultra- fine layer of aluminium.

BLIND APPLICATIONS

Woven to 2400mm, SilverScreen is an ideal fabric for roller blinds in offices and large public spaces. SilverScreen rolls evenly, reliably and consistently. It is suitable for roman, panel glide and roller blind systems.



SILVERSCREEN COMPARISON TABLE

	glazing	black		dark grey		light grey		beige		white	
		SilverScreen	Common Screen	SilverScreen	Common Screen	SilverScreen	Common Screen	SilverScreen	Common Screen	SilverScreen	Common Screen
Solar Transmission		5%	5%	5%	6%	5%	18%	5%	20%	6%	21%
Solar Reflection Outside		75%	5%	76%	9%	75%	52%	74%	61%	74%	68%
Light Transmission		5%	5%	5%	5%	5%	17%	5%	19%	6%	20%
Light Reflection Outside		74%	5%	74%	8%	74%	58%	73%	68%	73%	77%
UV Transmission		5%	5%	5%	5%	5%	5%	4%	5%	5%	5%
Openness Factor (nominal)		4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Ra (colour rendering index)		99	100	99	99	100	94	99	88	99	95
Solar control glazing											
Light Transmission	67%	4%	3%	3%	4%	4%	11%	4%	12%	4%	14%
g-value	37%	14%	31%	14%	31%	14%	20%	14%	17%	14%	15%
U-value (W/m².K)	1.1	0.7	0.8	0.7	0.8	0.7	0.9	0.7	0.9	0.7	0.9
Single 3mm clear											
Light Transmission	90%	5%	5%	4%	5%	5%	15%	5%	17%	6%	19%
g-value	87%	20%	52%	20%	51%	20%	35%	21%	31%	21%	28%
SC	100%	23%	60%	23%	58%	23%	40%	24%	36%	24%	32%
U-value (W/m².K)	5.3	1.7	2.6	1.7	2.6	1.7	2.6	1.7	2.6	1.7	2.6
Single 6 mm clear											
Light Transmittance	89%	5%	5%	4%	5%	5%	15%	5%	17%	6%	19%
g-value	83%	20%	50%	20%	49%	20%	34%	21%	30%	21%	27%
SC	95%	23%	57%	23%	56%	23%	39%	24%	34%	24%	31%
U-value (W/m.K)	5.2	1.7	2.6	1.7	2.6	1.7	2.6	1.7	2.6	1.7	2.6
Double 6 mm clear											
Light Transmission	79%	5%	4%	5%	5%	5%	15%	5%	18%	6%	20%
g-value	74%	23%	54%	23%	53%	24%	37%	24%	34%	24%	30%
SC	85%	26%	62%	26%	61%	28%	43%	28%	39%	28%	34%
U-value (W/m².K)	2.6	1.2	1.7	1.2	1.7	1.2	1.7	1.2	1.7	1.2	1.7
Low-E glazing											
Light Transmission	80%	5%	4%	5%	4%	5%	15%	5%	18%	6%	20%
g-value	63%	24%	52%	24%	50%	25%	36%	25%	32%	25%	29%
SC	72%	28%	60%	28%	57%	29%	41%	29%	37%	29%	33%
U-value (W/m².K)	1.2	0.7	0.9	0.7	0.9	0.7	0.9	0.7	0.9	0.7	0.9

All presented data is calculated in WIS 3.0.1. (Advanced Windows Information System) with spectral data. All calculations are made according to EN410 and ISO15099 without ventilation. Specifications and other data are based on information available at the time of preparation of this document and are subject to production tolerances and/or change without prior notice.

Verosol®

SILVERSCREEN™

FABRIC INFORMATION



Flame Retardant

SEMI TRANSPARENT - Metallised Screen

SYSTEMS AVAILABLE



Roller Blinds



Panel Glide



Roman Blinds

SPECIFICATIONS

Integrated and thermal optical properties	Fabric density		SilverScreen™	
	Fabric colour		Dark Grey	
	Solar transmittance		5%	
	Solar reflectance outside		76%	
	Solar absorptance		19%	
	Luminous transmittance		5%	
	Luminous reflectance outside		74%	
	Luminous absorptance		21%	
	UV transmittance		5%	
	Openness factor (nominal)		4%	
	Ra[Colour rendering index]		99	
Glazing Type	Single 3mm Clear Glass		Solar Control Glazing	
	Light transmittance		5%	
	G-value		14%	
	Shading coefficient		16%	
	U-value (W/m²K)		0.7	
Composition		36% Fibreglass / 64% PVC		
Pattern		Natté 1x2		
Weight per m²		400g ± 5%		
Thickness		0.5mm ± 5%		
Dimensional stability / Breaking strength	Warp	150daN/5cm		
	Weft	150daN/5cm elongation		
Tear resistance	ISO 4674	6á 10 daN		
Resistance to fold		Mini 20 daN/5cm		
Colour fastness to light	ISO 105-B02	7/8		
Anti static		Fabric is anti-static		
Flame retardancy	Ignitability index	18	Range [0–20]	
AS/NZS 1530.3-1999	Spread of flame index	0	Range [0–10]	
	Heat evolved index	0	Range [0–10]	
	Smoke developed index	4	Range [0–10]	



No Blind



Ultra Transparent



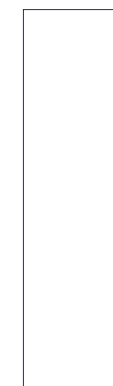
Transparent



Semi Transparent



Non Transparent



Blockout

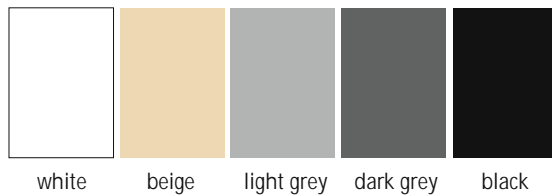
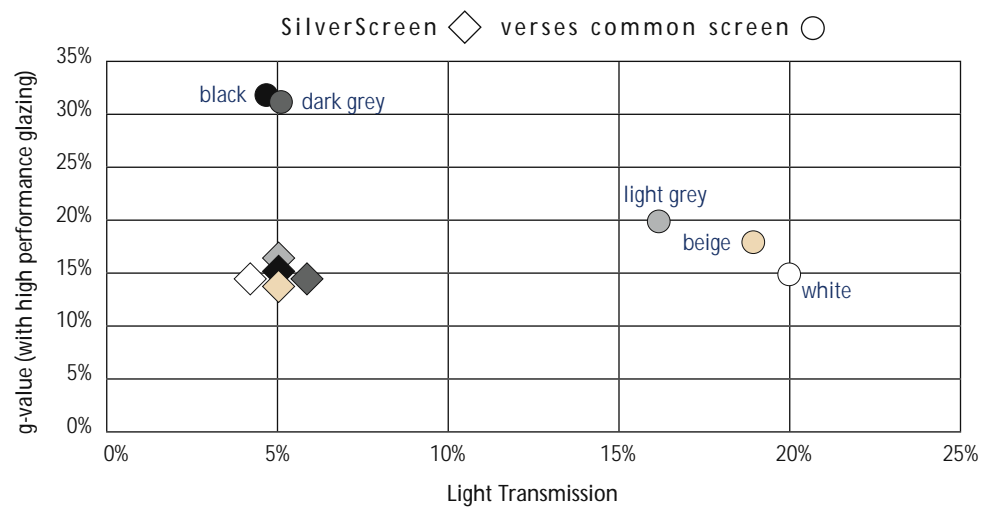
FEATURES

SilverScreen™ semi transparent metal backed screen fabric provides excellent vision out. SilverScreen dramatically reducing heat and glare at the window independent of colour. It is constructed from a hard wearing PVC coated fibreglass yarn and woven to 2400mm in width. SilverScreen is inherently flame retarded.

SilverScreen is designed specifically for manual and motorised roller blinds systems.

Note: All presented data calculated in WIS 3.0.1 (Advanced Windows Information System) with spectral data. Specifications and other data are based on information available at the time of preparation of this document and are subject to production tolerances and/or change without prior notice. Flame retardancy information is sourced from AWTa testing results. Please note that test results may vary slightly depending on fabric colour. [Solar Control Glazing EN 13363-2, ISO 15099, Measurements according to EN410], [3mm Single Glass(Pilkington OpCL_3.plg) according to EN410, ISO 9050 and ISO 15099 without ventilation].

SILVERSCREEN g-VALUE V'S LIGHT TRANSMISSION



This graph clearly indicates that the performance of SilverScreen is practically independent of colour selection.

- . Lower light transmission = less glare.
- . Lower g-value / SHGC = less heat.



Verosol®

816 FABRIC

FABRIC INFORMATION



Flame Retardant

TRANSPARENT - Metallised

SYSTEMS AVAILABLE



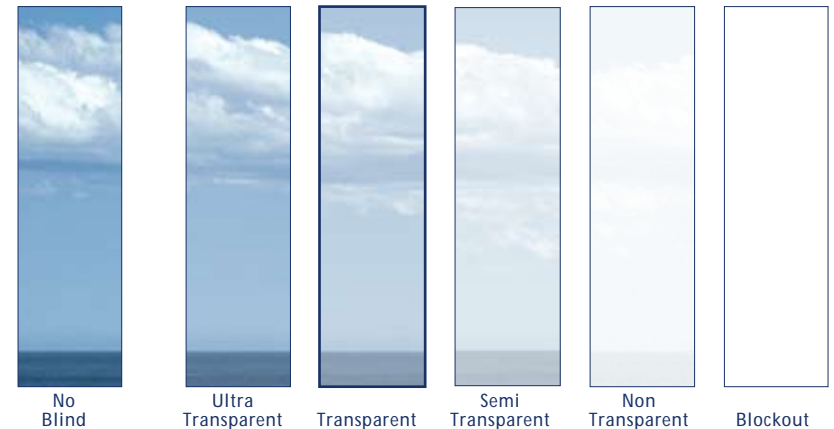
Pleated Blinds



Roller Blinds

SPECIFICATIONS

Integrated and thermal optical properties	Fabric density		816 Transparent	
	Fabric colour		000	
	Solar transmittance		29%	
	Solar reflectance outside		44%	
	Solar absorptance		27%	
	Luminous transmittance		29%	
	Luminous reflectance outside		43%	
	Luminous absorptance		28%	
	UV transmittance		27%	
	Openness factor (nominal)		23%	
	Ra[Colour rendering index]		98	
Glazing Type			Single 3mm Clear Glass	Solar Control Glazing
	Light transmittance		28%	22%
	G-value		44%	24%
	Shading coefficient		51%	28%
	U-value (W/m²K)		2.5	0.8
Fabric	Yarn composition: Trevira CS	Weight (g/m²): 70	Thickness (mm): 0.23	
Aluminium adhesion			ISO 2409 classification 0	
Aluminium retention	Water vapour test		Percentage loss aluminium	
			After 30mins - 0% After 2hrs - 50%	
	Sulphur dioxide test		Percentage loss aluminium	
			After 3hrs - 0% After 5hrs - 40%	
Pleat retention	AWTA test - 100% heat applied to 30 pleats		Retention - 10 pleats	
Corrosion resistance			Metal layer EN ISO 3231	
Noise Reduction	ASTM test C423-84a		Coefficient of 0.35 sabin/sq.ft	
Colour fastness			Colour >5	
DIN 54004			Metal 8	
816 fabric is Anti static, PVC Free and Formaldehyde Free				
Flame retardancy	Ignitability index		0	Range [0–20]
AS 1530.3-1989	Spread of flame index		0	Range [0–10]
	Heat evolved index		0	Range [0–10]
	Smoke developed index		0-1	Range [0–10]



FEATURES

816 is a highly transparent, metal backed fabric is woven from 100% Trevira CS and is inherently fibre flame retarded. 816 provides excellent vision out, heat control in Summer and insulation against heat loss in Winter.

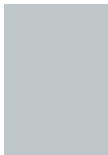
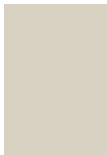
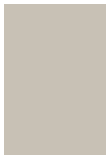






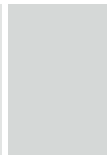





816 offers high performance is independent of colour.

816 is woven to 2200mm in width and designed specifically for pleated, roller, twin and motorised blind systems.

Note: All presented data calculated in WIS 3.0.1 (Advanced Windows Information System) with spectral data. Specifications and other data are based on information available at the time of preparation of this document and are subject to production tolerances and/or change without prior notice. Flame retardancy information is sourced from AWTA testing results. Please note that test results may vary slightly depending on fabric colour. [Solar Control Glazing EN 13363-2, ISO 15099, Measurements according to EN410], [3mm Single Glass(Pilkington OpCl_3.plg) according to EN410, ISO 9050 and ISO 15099 without ventilation].



816 FABRIC - COLOUR RANGE

														
105 Slate	741 Parchment	711 Almond	292 Blonde	765 Gravel	162 Straw	778 Café	790 Espresso	999 Silver	000 Soft Grey	920 Pewter	882 Regency Grey	936 Dark Grey	998 Anthracite	829 Onyx

Verosol®

812 FABRIC

FABRIC INFORMATION



Flame Retardant

SEMI TRANSPARENT - Metallised

SYSTEMS AVAILABLE



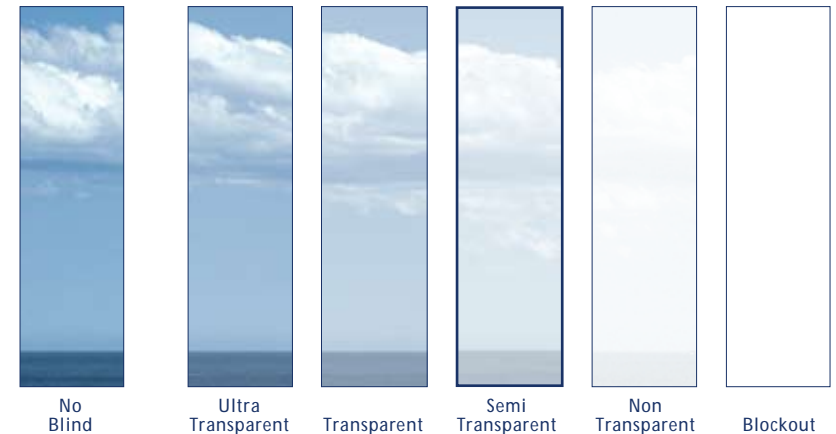
Pleated Blinds



Roller Blinds

SPECIFICATIONS

Integrated and thermal optical properties	Fabric density		812 Semi Transparent	
	Fabric colour		000	
	Solar transmittance		9%	
	Solar reflectance outside		64%	
	Solar absorptance		27%	
	Luminous transmittance		9%	
	Luminous reflectance outside		63%	
	Luminous absorptance		28%	
	UV transmittance		7%	
	Openness factor (nominal)		5%	
	Ra[Colour rendering index]		99	
Glazing Type			Single 3mm Clear Glass	Solar Control Glazing
	Light transmittance		9%	7%
	G-value		28%	18%
	Shading coefficient		32%	21%
	U-value (W/m²K)		2.1	0.8
Fabric	Yarn composition: Trevira CS	Weight (g/m²): 95	Thickness (mm): 0.20	
Aluminium adhesion			ISO 2409 classification 0	
Aluminium retention	Water vapour test		Percentage loss aluminium	
			After 30mins - 0% After 2hrs - 50%	
	Sulphur dioxide test		Percentage loss aluminium	
			After 3hrs - 0% After 5hrs - 40%	
Pleat retention	AWTA test - 100% heat applied to 30 pleats		Retention - 10 pleats	
Corrosion resistance			Metal layer EN ISO 3231	
Noise Reduction	ASTM test C423-84a		Coefficient of 0.35 sabin/sq.ft	
Colour fastness			Colour >5	
DIN 54004			Metal 8	
812 fabric is Anti static, PVC Free and Formaldehyde Free				
Flame retardancy	Ignitability index	0	Range [0–20]	
AS/NZS 1530.3-1989	Spread of flame index	0	Range [0–10]	
	Heat evolved index	0	Range [0–10]	
	Smoke developed index	0-1	Range [0–10]	



FEATURES

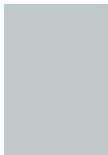
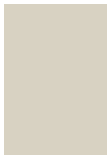
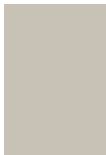






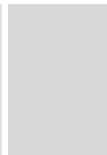





812 is a semi transparent metal backed fabric is woven from 100% Trevira CS and is inherently fibre flame retarded. 812 provides good visual contact through the window, heat control in Summer, excellent glare control and insulation against heat loss in Winter. 812 offers high performance is independent of colour.

812 is woven to 2200mm in width and designed specifically for pleated, roller, twin and motorised blind systems.

Note: All presented data calculated in WIS 3.0.1 (Advanced Windows Information System) with spectral data. Specifications and other data are based on information available at the time of preparation of this document and are subject to production tolerances and/or change without prior notice. Flame retardancy information is sourced from AWTA testing results. Please note that test results may vary slightly depending on fabric colour. [Solar Control Glazing EN 13363-2, ISO 15099, Measurements according to EN410], [3mm Single Glass(Pilkington OpCl_3.plg) according to EN410, ISO 9050 and ISO 15099 without ventilation].



812 FABRIC - COLOUR RANGE

														
105 Slate	741 Parchment	711 Almond	292 Blonde	765 Gravel	162 Straw	778 Café	790 Espresso	999 Silver	000 Soft Grey	920 Pewter	882 Regency Grey	936 Dark Grey	998 Anthracite	829 Onyx

Verosol®

878 FABRIC

SPECIFICATIONS

Integrated and thermal optical properties	Fabric density		878 Non Transparent	
	Fabric colour		000	
	Solar transmittance		4%	
	Solar reflectance outside		68%	
	Solar absorptance		28%	
	Luminous transmittance		4%	
	Luminous reflectance outside		67%	
	Luminous absorptance		29%	
	UV transmittance		1.5%	
	Openness factor (nominal)		0%	
	Ra[Colour rendering index]		99	
Glazing Type			Single 3mm Clear Glass	Solar Control Glazing
	Light transmittance		4%	3%
	G-value		24%	16%
	Shading coefficient		28%	18%
	U-value (W/m²K)		1.9	0.7
Fabric	Yarn composition: Trevira CS	Weight (g/m²): 142	Thickness (mm): 0.23	
Aluminium adhesion	ISO 2409 classification 0			
Corrosion resistance	Metal layer EN ISO 3231			
Colour fastness	Colour >5			
DIN 54004	Metal 8			
878 fabric is Anti static, PVC Free and Formaldehyde Free				
Flame retardancy	Ignitability index	0	Range [0–20]	
AS/NZS 1530.3-1999	Spread of flame index	0	Range [0–10]	
	Heat evolved index	0	Range [0–10]	
	Smoke developed index	0-1	Range [0–10]	

FABRIC INFORMATION



Flame Retardant

NON TRANSPARENT - Metallised

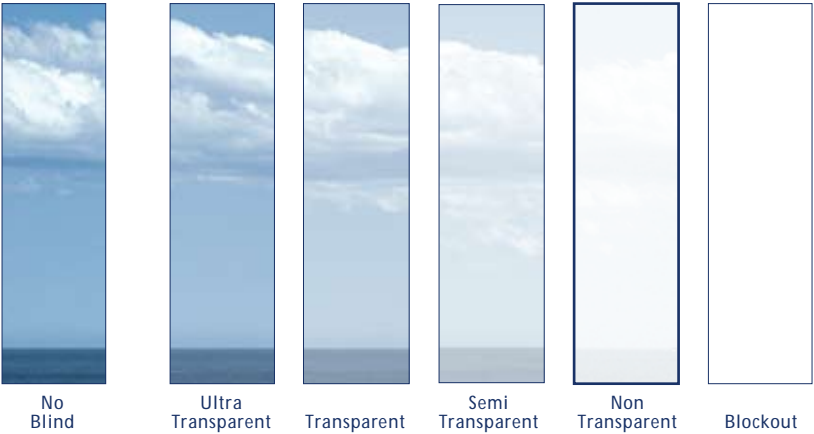
SYSTEMS AVAILABLE



Pleated Blinds



Roller Blinds



FEATURES

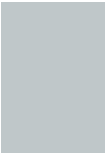
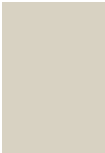
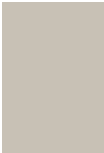





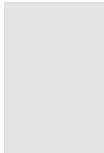
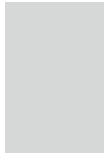





878 is a non-transparent metal backed fabric is woven from 100% Trevira CS and is inherently fibre flame retarded. 812 provides excellent heat and glare control with insulation against heat loss in Winter. 878 offers excellent performance is independent of colour.

878 is woven to 2200mm in width and designed specifically for pleated, roller, twin and motorised blind systems.

Note: All presented data calculated in WIS 3.0.1 (Advanced Windows Information System) with spectral data. Specifications and other data are based on information available at the time of preparation of this document and are subject to production tolerances and/or change without prior notice. Flame retardancy information is sourced from AWTA testing results. Please note that test results may vary slightly depending on fabric colour. [Solar Control Glazing EN 13363-2, ISO 15099, Measurements according to EN410], [3mm Single Glass(Pilkington OpCl_3.plg) according to EN410, ISO 9050 and ISO 15099 without ventilation].



878 FABRIC - COLOUR RANGE

														
105 Slate	741 Parchment	711 Almond	292 Blonde	765 Gravel	162 Straw	778 Café	790 Espresso	999 Silver	000 Soft Grey	920 Pewter	882 Regency Grey	936 Dark Grey	998 Anthracite	829 Onyx

Verosol®

982 FABRIC

FABRIC INFORMATION

BLOCKOUT - Metallised

SYSTEMS AVAILABLE



Pleated Blinds



Roller Blinds

SPECIFICATIONS

Integrated and thermal optical properties	Fabric density		982 Blockout	
	Fabric colour		000	
	Solar transmittance		0%	
	Solar reflectance outside		65%	
	Solar absorptance		35%	
	Luminous transmittance		0%	
	Luminous reflectance outside		64%	
	Luminous absorptance		36%	
	UV transmittance		0%	
	Openness factor (nominal)		0%	
	Ra[Colour rendering index]		n/a	
Glazing Type	Single 3mm Clear Glass		Solar Control Glazing	
	Light transmittance		0%	
	G-value		17%	
	Shading coefficient		20%	
	U-value (W/m²K)		0.7	
	Fabric	Yarn composition: Polyester	Weight (g/m²): 270	Thickness (mm): 0.34
Aluminium adhesion	ISO 2409 classification 0			
Corrosion resistance	Metal layer EN ISO 3231			
Colour fastness	Colour >5			
DIN 54004	Metal 8			
982 fabric is Anti static, PVC Free and Formaldehyde Free				
Flame retardancy	N/A		Fabric in non fire retardant	



FEATURES

982 is a blockout, metal backed Polyester fabric which provides total privacy and room darkening. 982 provides outstanding protection against Summer heat and superb insulation in Winter.

982 is woven to 2200mm in width ideally suited for use as a roller, pleated, twin or motorised blind where room darkening or total privacy is desirable.

Note: All presented data calculated in WIS 3.0.1 (Advanced Windows Information System) with spectral data. Specifications and other data are based on information available at the time of preparation of this document and are subject to production tolerances and/or change without prior notice. Please note that test results may vary slightly depending on fabric colour. [Solar Control Glazing EN 13363-2, ISO 15099, Measurements according to EN410], [3mm Single Glass(Pilkington OpCl_3.plg) according to EN410, ISO 9050 and ISO 15099 without ventilation].

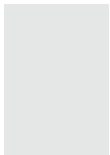


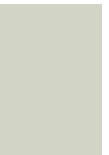



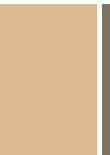






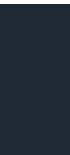


Verosol 982 - Mode Roller Blinds



Verosol 982 - Pleated Blind

982 FABRIC - COLOUR RANGE

														
000 Ash White	105 Alpine	106 Eggshell	221 Champagne	292 Blonde	711 Almond	765 Gravel	162 Straw	778 Café	790 Espresso	920 Pewter	882 Regency Grey	936 Dark Grey	998 Anthracite	829 Onyx

FENESTRATION

The fenestration is the arrangement of windows in a building.

WINDOW SYSTEM

The window system is the glazed unit OR glazed unit with shading device eg: 6mm glass + Verosol 812 metal backed blind.

SOLAR TRANSMITTANCE

The ratio or percentage of solar energy passing through the window system.

SOLAR ABSORPTANCE

The ratio or percentage of solar energy absorbed by a window system.

SOLAR REFLECTANCE

The ratio or percentage of solar energy reflected by a window system.

LUMINOUS TRANSMITTANCE

The ratio or percentage of visible light passing through the window system.

LUMINOUS ABSORPTANCE

The ratio or percentage of visible light absorbed by a window system.

LUMINOUS REFLECTANCE

The ratio or percentage of visible light reflected by the window system.

UV TRANSMITTANCE

The ratio or percentage of UV radiation that passes through a window system. Ultraviolet radiation contributes to sunburn, fading and damage to artwork, etc.

OPENNESS FACTOR

The ratio or percentage of open weave in a fabric. Greater openness improves vision out but at the expense of solar performance.

Ra

Color Rendering Index of the transmitted (day) light. An index developed by CIE which describes changes in color. Ra may reach a maximum value of 100. Ra > 90 characterises very good, an Ra > 80 a good color rendering. Color affects the appearance of both the view outside and the appearance of interior finishes.

LIGHT TRANSMITTANCE (3mm GLASS)

The percentage or fraction of visible light transmitted through a window system.

SHADING COEFFICIENT - SC

Is the ratio or percentage of solar radiation that penetrates a window system with 3 mm single glazing. $SC = g\text{-value}/0.87$.

Solar radiation has nothing to do with temperature.

g-VALUE / SHGC

Solar heat gain is normally quantified by the g-value, also known as the solar heat gain coefficient (SHGC). It is the fraction of solar radiation admitted through a window or skylight, both directly transmitted, and absorbed and subsequently released inward. The Solar Heat Gain Coefficient has replaced the Shading Coefficient (SC) as the standard indicator of a window's shading ability. It is expressed as a number without units between 0 and 1. A window with a lower Solar Heat Gain Coefficient transmits less solar heat, and provides better shading.

U - VALUE

The U-value measures the rate of heat flow through a window system ie: thermal heat loss. It is expressed in units of Btu/hr-ft²-°F or W/m².°C (W/m².K). Window manufacturers and engineers commonly use the U-value to describe the rate of non-solar heat loss or gain through a window system. The lower the U-value means greater resistance to heat flow and better insulating values. Thermal heat and insulation has no direct connection with solar radiation.

VENTILATION

g-values (SHGC) and U-values of glazing with shading are dependent on ventilation air flows in the cavity between the glazing and the shading, as described in ISO15099.

Verosol selected two examples:

- without ventilation (compliant to EN410 / ISO9050) and
- with natural (not forced) air ventilation.

SAVINGS CALCULATOR

Verosol has developed a web based, dynamic savings calculator which provides detailed information about potential costs and CO₂ savings with SilverScreen fabric. The online savings calculator can be found at www.silverscreen-fabrics.com/savingscalculator.php. It is important to note that the Verosol Savings Calculator is a useful tool at the early stages of planning, design and glass specification.

It is not however, meant to replace professional engineering advice. For support with the savings calculator speak with your Technical Representative on 1800 011 976.

TREVIRA CS

Trevira CS is the registered brand name of a fibre polymer with in-built flame retardant properties (via the phosphorous compound which are a part of the macro molecular chain) are produced. Trevira CS meets all major flammability standards world wide including M1 cruise ship requirement (F,E,P) via its' 3 flame retardant mechanisms:

1. Trevira CS melts away from the flame, absorbing ignition energy.
2. Trevira CS fibres retract from intense heat and flame without dripping.
3. Trevira CS flame retardant groups quench reactive species, chain reaction cannot propagate ie: it is self-extinguishing.

Verosol offers a selection of three metal backed blind fabrics woven from Trevira CS yarn - 816, 812 & 878.

These characteristics eliminate the likelihood of flames leap frogging to other possible points of ignition. Furthermore, Verosol's Trevira CS metal backed blind fabrics are inherently flame retarded for the life of the fibre. In comparison, chemically flame retarded fabrics experience reduced FR performance through wear and tear, cracking, flaking, bending, normal ageing and most significantly with washing.



WARRANTY

All Verosol products come with a 3 year warranty covering component failure and manufacturing issues - incorrect use will void the warranty.

To speak with a technical consultant call (01) 456 111 or visit www.windowblinds.ie

