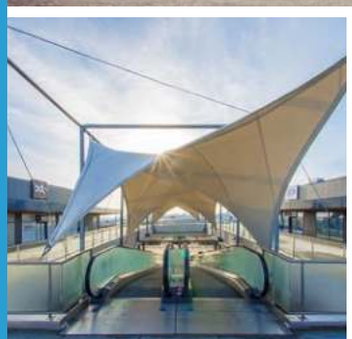
SIOEN

Architectural Membranes



Textile facade of TiO_3 building
Country: Belgium
City: Ronse

Architectural membranes

Dear reader,

With over 110 years of textile traditions, we serve companies that have the ambition to shape the future and contribute to the challenges of our fast evolving world.

At Sioen, we commit to bring ideas into reality. We make sure that we guide innovative ideas from concept into implementation in fast moving markets. For the customers, whose visions we share, we deliver support until we achieve a reliable and satisfactory solution.

As technical textile experts, we focus on applications and materials that only few know to deal with: textile membranes.

The constant development of state-of-the-art projects is the fruit of our exceptional experience combined with a great technical know-how. Textile architecture opens up unimagined possibilities allowing to create building sculptures, organic shapes, light roofs or draw attention to spectacular facades with advanced properties in an economical, environmentally friendly and sustainable way.

Products

Fluo²max	7
Fluomax	11
Easyfluo	15
Façade	19
Flexout	23
Fluoscrim	27
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Sioen is member of

TensiNet IMS e.v.

Quick selection guide for TA

Architectural membranes

	Range	Definition	Tensile strength	Fibres
page 7	**Fluo²max**	Highest durability membrane	Standard: Type 1 to Type 4	High quality High tenacity polyester
page 8	**Fluomax**	Performance membrane	Standard: Type 0 to Type 5	High quality High tenacity polyester
page 12	**Easyfluo**	Cost efficient membrane	Blockout: Type 0 and Type 1 Translucent: Type 1 and Type 2	High quality High tenacity polyester
page 19	**Façade**	Facade mesh	Type 2	High quality High tenacity polyester
page 27	**Fluoscrim**	Highly translucent membrane	Type 2	Glass fibre mesh

Flexout stretch membranes

	Item	Definition	Coating composition
page 23	**Flexout**	One side coated stretch membrane	PVC or PU
		Double side coated stretch membrane	PU

Treatments				
Low wick	*Flame Retardancy*	*Antibacteriall*	**Top coating**	**Warranty**
Yes	Yes	Yes	Front: TiO_2 + PVDF Back: PVDF	Up to 20 years
Yes	Yes	Yes	Front: PVDF Back: PVDF	Up to 15 years
Yes	Yes	Yes	Front: PVDF Back: Acrylic	Up to 10 years
No	Yes	Yes	Both side In deep lacquering: Mat / Glossy / Print	Up to 12 years
Yes	Yes	Yes	Translucent fluoropolymer HF weldable	Up to 15 years

Treatments				
Flame Retardancy	*Fabric*	*Antibacteriall*	**Top coating**	**Warranty**
Yes	Colored knit	Yes	Yes	Up to 2 years
Yes		Yes	Yes	Up to 2 years

Adriatic Arena

Country: Italy

City: Pesaro

Fluo²max

FLUO²MAX™
TiO_2 + PVDF

The summit of elegance and unrevealed excellence. A piece of art where the fabric becomes the reflection of its masters mind, carved to a piece of art which unifies with its surroundings breathing into the atmosphere by its humble beauty. A material designed with our latest TiO_2 and PVDF technologies for expression and creativity always being referred to by the coming generations.

9 layered membrane

Surface treatment (front)
PVDF direct weldable

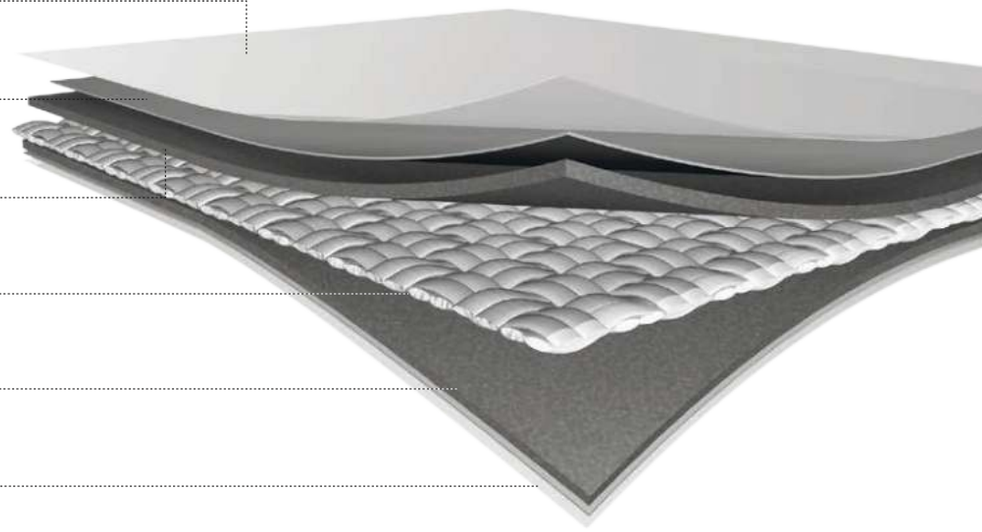
Primer
TiO_2

Base coating
Architectural PVC coating (2 layers)

Fabric
High tenacity PES low wick treated

Base coating
Architectural PVC coating (2 layers)

Surface treatment (back)
PVDF direct weldable (2 layers)



Overview Fluo²Max™ qualities

Directly weldable PVC coated polyester fabric with TiO_2 and PVDF lacquering for enhanced lifetime durability.

		Type 1	Type 2	Type 2
		T1117T	T2117T	T2118T
Basic properties				
Total weight - g/m²		725	900	1050
Thickness		0,60 mm	0,75 mm	0,9 mm
Standard width (1)		300 cm	300 cm	300 cm
Technical specifications				
Breaking strength (Warp/Weft) - N/5cm		3000/3000	4300/4200	4300/4200
Tear strength (Warp/Weft) - N		300/300	600/500	600/500
Adhesion - N/5cm		100	120	120
Temperature resistance		-30/+70°C	-30/+70°C	-30/+70°C
Flex cracking (100.000x)		no cracks	no cracks	no cracks
Microbial resistance		degree 0	degree 0	degree 0
Fire resistance	*EU Fire test*	B-s2 d0	B-s2,d0	B-s2 d0
	French Fire test	M2	M2	M2
	German Fire test	B1	B1	B1
	British Fire test	Pass	Pass	Pass
	Marshall Fire test	Pass	Pass	Pass
	Australian Fire test	Tested	Tested	-
	Russian technical standard	Pass	Pass	Pass
	American Fire test	Pass	Pass	Pass
Solar values	*Solar Transmission (Ts)*	8,5 %	7,4%	5,6%
	Visible light transmission (Tv)	7,2%	6,3%	4,7%
	Reflection (Rs)	81%	81%	83%
	UV transmission (Tuv)	0%	0%	0%
	Solar reflection (SRI)	102	103	105
	Solar Factor (G value)	12%	11%	9%
	U value (Vertical Airflow)	5,6	5,5	5,5
	U value (Horizontal Airflow)	4,7	4,6	4,6

Type 3	Type 4	
T3117T	T4117T	
1150	1350	*DIN EN ISO 2286/2*
1 mm	1,15 mm	*DIN 5084*
300 cm	250 cm	
6000/5500	8000/7000	*DIN 1421*
900/800	1200/1200	*DIN 53363*
120	120	*ISO 2411*
-30/+70°C	-30/+70°C	*DIN EN 1876/2*
no cracks	no cracks	*DIN 53359A*
degree 0	degree 0	*EN ISO 846-A*
B-s2 d0	C-s2 d0	*EN 13501*
M2	-	*NF P 92 507*
B1	B1	*DIN 4102*
Pass	Pass	*BS 7837*
Pass	Pass	*California T19*
-	-	*AS 1530.2*
Pass	Pass	*GOST*
Pass	Pass	*NFPA 701*
4,8%	4,5%	*DIN EN 410*
4,2%	4%	*DIN EN 410*
83%	83%	*DIN EN 410*
0%	0%	*DIN EN 410*
106	106	*ASTM E 1980*
7%	8%	*DIN EN 13363/1*
5,5	5,5	*DIN EN ISO 6946*
4,6	4,6	*DIN EN ISO 6946*

Colours

Other colours and width on request.

9909 - White

Standard rolls: 3m wide 100 lm
Jumbo rolls: on request

Key features

Low wick

Flame retardant

Antibacterial

Best in class UV resistance

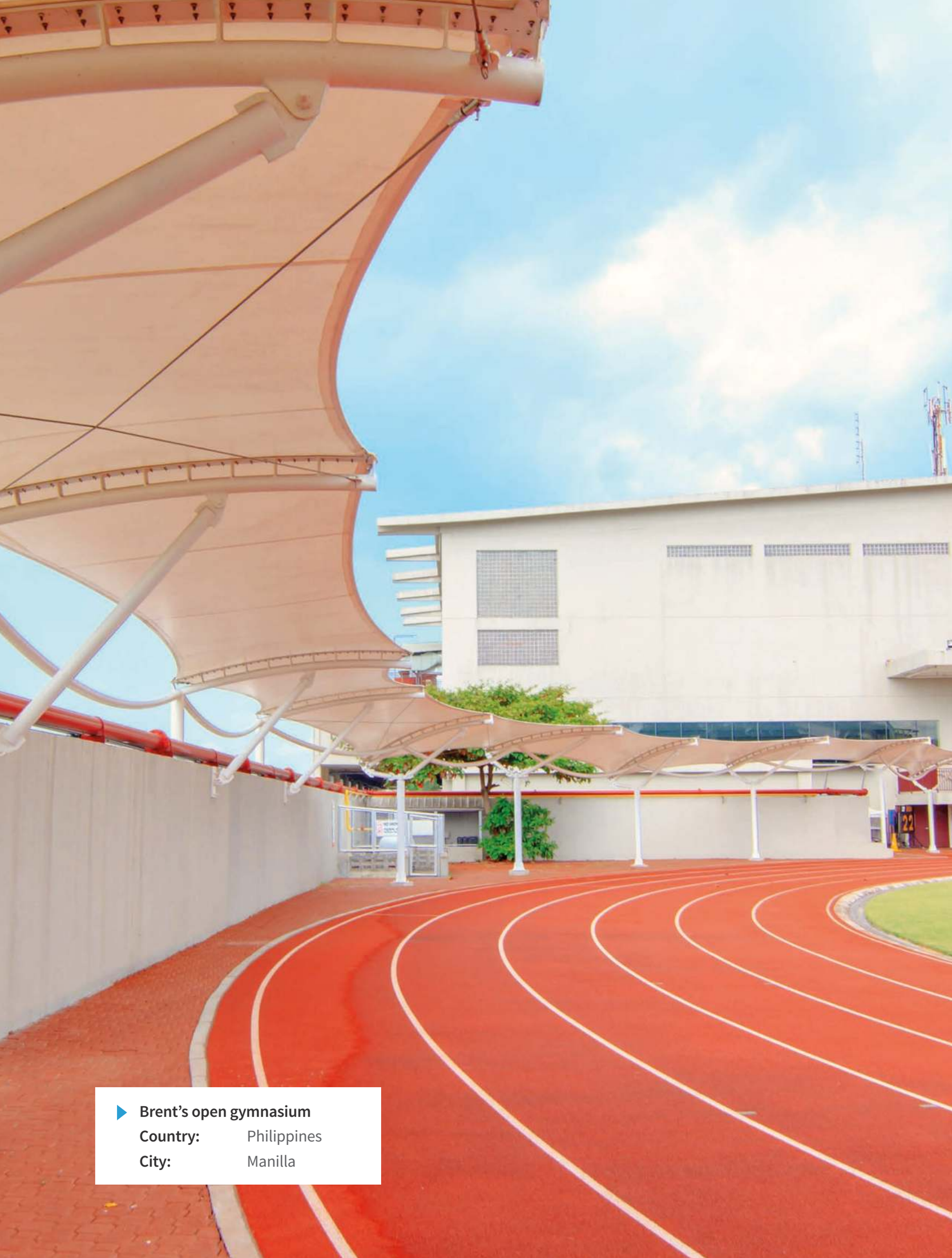
Direct HF weldable

Lacquering

Top: **TiO_2-PVDF**

Bottom: **PVDF**

20 years warranty



Brent's open gymnasium

Country: Philippines

City: Manilla

Fluomax

FLUOMAX™
PVDF LACQUERING

The reference material expressing the architects signature to its best. Its superb PVDF topcoat ensures you the brilliance and luster expected from each creative structure. Its flexibility and lightness inspires you to go beyond the boundaries of your imagination and stills the hunger of your creativity. It's not just a material but it is the standard.

9 layered membrane

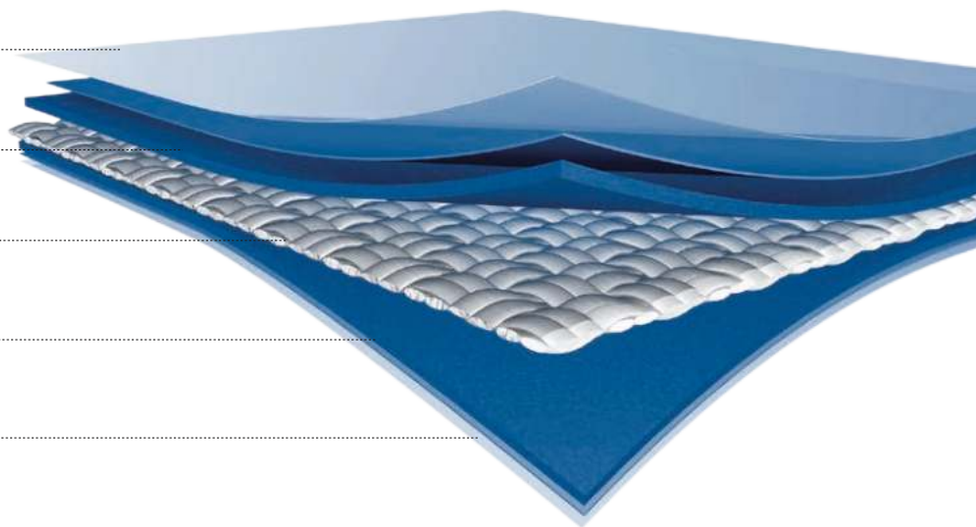
Surface treatment (front)
PVDF direct weldable (2 layers)

Base coating
Architectural PVC coating (2 layers)

Fabric
High tenacity PES low wick treated

Base coating
Architectural PVC coating (2 layers)

Surface treatment (back)
PVDF direct weldable (2 layers)



Overview Fluomax qualities

Directly weldable PVC coated polyester fabric with both side PVDF lacquering.

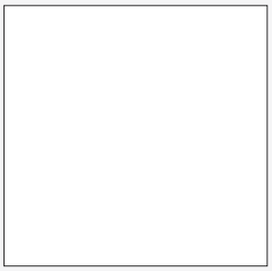
		Type 0	Type 1	Type 2	Type 2	Type 3
FLUOMAX™ PVDF LACQUERING		T0117F	T1117F	T2117F	T2118F	T3117F
Basic properties						
Total weight - g/m²		650	725	900	1050	1150
Thickness		0,55 mm	0,60 mm	0,75 mm	0,90 mm	1,00 mm
Standard width (1)		300 cm	300 cm	300 cm	300 cm	300 cm
Technical specifications						
Breaking strength (Warp/Weft) - N/5cm		2900/2700	3000/3000	4300/4200	4300/4200	6000/5500
Tear strength (Warp/Weft) - N		300/300	300/300	600/500	600/500	900/800
Adhesion - N/5cm		100	100	120	120	120
Temperature resistance		-30/+70°C	-30/+70°C	-30/+70°C	-30/+70°C	-30/+70°C
Flex cracking (100.000x)		no cracks	no cracks	no cracks	no cracks	no cracks
Microbial resistance		degree 0	degree 0	degree 0	degree 0	degree 0
Fire resistance	*EU Fire test*	B-s2 d0	B-s2 d0	B-s2 d0	B-s2 d0	B-s2 d0
	French Fire test	M2	M2	M2	M2	M2
	German Fire test	B1	B1	B1	B1	B1
	British Fire test	Pass	Pass	Pass	Pass	Pass
	Marshall Fire test	Pass	Pass	Pass	Pass	Pass
	Australian Fire test	Tested	Tested	Tested	-	-
	Russian technical standard	Pass	Pass	Pass	Pass	Pass
	American Fire test	Pass	Pass	Pass	Pass	Pass
Solar values	*Solar Transmission (Ts)*	11%	10%	8,6%	7%	6,2%
	Visible light transmission (Tv)	10%	9%	7,4%	6%	5,6%
	Reflection (Rs)	78%	79%	82%	81%	82%
	UV transmission (Tuv)	0%	0%	0%	0%	0%
	Solar reflection (SRI)	97	98	101	102	103
	Solar Factor (G value)	13%	12%	10%	10%	8%
	U-Value (Vertical airflow)	5,6 W/(m².K)	5,6 W/(m².K)	5,5 W/(m².K)	5,5 W/(m².K)	5,5 W/(m².K)
	U-Value (Horizontal airflow)	4,7 W/(m².K)	4,7 W/(m².K)	4,6 W/(m².K)	4,6 W/(m².K)	4,6 W/(m².K)

Type 4	Type 5	
T4117F	T5117F	
1350	1600	*DIN EN ISO 2286/2*
1,15 mm	1,39 mm	*DIN 5084*
250 cm	250 cm	
8000/7000	10000/9000	*DIN 1421*
1200/1200	2000/2000	*DIN 53363*
120	150	*ISO 2411*
-30/+70°C	-30/+70°C	*DIN EN 1876/2*
no cracks	no cracks	*DIN 53359A*
degree 0	degree 0	*EN ISO 846-A*
C-s2 d0	C-s3 d0	*EN 13501*
-	-	*NF P 92 507*
B1	-	*DIN 4102*
Pass	Pass	*BS 7837*
Pass	Pass	*California T19*
-	-	*AS 1530.2*
Pass	Pass	*GOST*
Pass	Pass	*NFPA 701*
5,4%	4%	*DIN EN 410*
4,9%	1%	*DIN EN 410*
82%	83%	*DIN EN 410*
0%	0%	*DIN EN 410*
104	102	*ASTM E 1980*
7%	-	*DIN EN 13363/1*
5,5 W/(m².K)	-	*DIN EN ISO 6946*
4,6 W/(m².K)	-	*DIN EN ISO 6946*

Colours

Other colours and width on request,
for colour range see table pages 32-33.

1815 - Sandstone



9909 - White

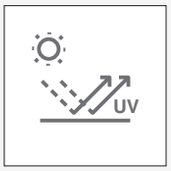
Standard rolls: 3m wide 100 lm
Jumbo rolls: on request

Key features

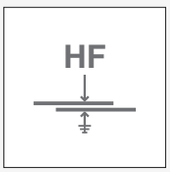
Low wick

Flame retardant

Antibacterial



Excellent
UV resistance



Direct HF
weldable

Lacquering

Top:
PVDF

Bottom:
PVDF

15
years
warranty

Golf Area - The Royal Gems
Country: Thailand
City: Bangkok

Easyfluo

EASYFLUO™
PVDF LACQUERING

The architectural membrane with the best cost performance ratio. From the smallest structure up the design of your dreams. A material which leans itself to easy handling, and of which its transformations are characterized by their durability, lightweight and translucency and this for more than a decade. Easyfluo is the most cost efficient material.

9 layered membrane

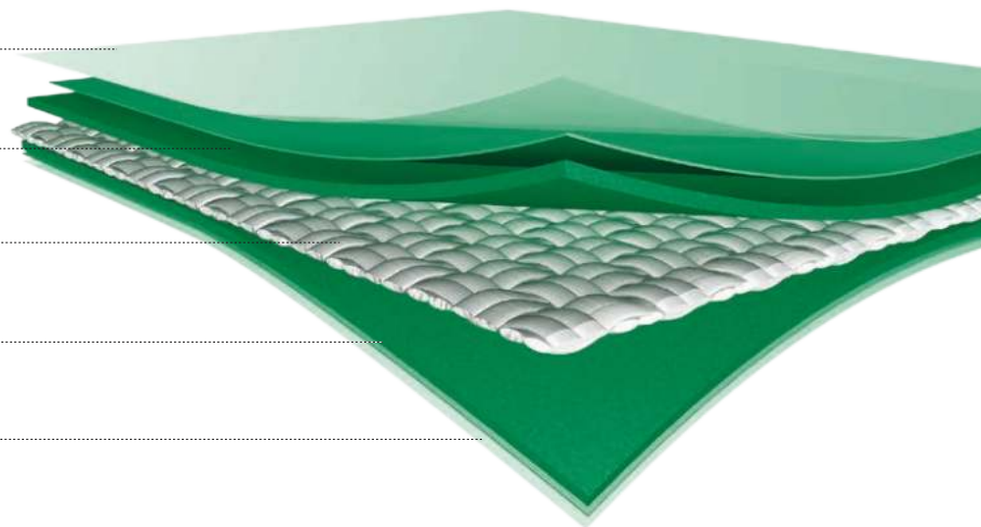
Surface treatment (front)
PVDF direct weldable (2 layers)

Base coating
Architectural PVC coating (2 layers)

Fabric
High tenacity PES low wick treated

Base coating
Architectural PVC coating (2 layers)

Surface treatment (back)
Acrylic direct weldable (2 layers)



Overview Easyfluo qualities

Directly weldable PVC coated polyester fabric with E-PVDF lacquering.

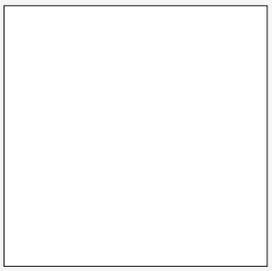
		Type 0 Opaque	Type 1	Type 1 Opaque
		T0119E	T1117E	T1119E
Basic properties				
Total weight - g/m²		800	725	850
Thickness		0,67 mm	0,60 mm	0,72 mm
Standard width [1]		300 cm	300 cm	300 cm
Technical specifications				
Breaking strength (Warp/Weft) - N/5cm		2900/2700	3000/3000	3000/3000
Tear strength (Warp/Weft) - N		300/300	300/300	300/300
Adhesion - N/5cm		100	100	100
Temperature resistance		-30/+70°C	-30/+70°C	-30/+70°C
Flex cracking (100.000x)		no cracks	no cracks	no cracks
Microbial resistance		degree 0	degree 0	degree 0
Fire resistance	*EU Fire test*	B-s2 d0	B-s2 d0	-
	French Fire test	M2	M2	M2
	German Fire test	-	B1	B1
	British Fire test	Pass	Pass	Pass
	Marshall Fire test	Pass	Pass	Pass
	Australian Fire test	-	Tested	-
	Russian technical standard	Pass	Pass	Pass
	American Fire test	Pass	Pass	Pass
Solar values	*Solar Transmission (Ts)*	0%	10%	0%
	Visible light transmission (Tv)	0%	9%	0%
	Reflection (Rs)	77%	79%	77%
	UV transmission (Tuv)	0%	0%	0%
	Solar reflection (SRI)	92	98	92
	Solar Factor (G value)	-	12%	-
	U-Value (Vertical airflow)	-	5,6 W (m².K)	-
	U-Value (Horizontal airflow)	-	4,7 W (m².K)	-

Type 2	Type 2	
T2117E	T2118E	
900	1150	*DIN EN ISO 2286/2*
0,75 mm	0,90 mm	*DIN 5084*
300 cm	300 cm	
4300/4200	4300/4200	*DIN 1421*
600/500	600/500	*DIN 53363*
120	120	*ISO 2411*
-30/+70°C	-30/+70°C	*DIN EN 1876/2*
no cracks	no cracks	*DIN 53359A*
degree 0	degree 0	*EN ISO 846-A*
B-s2 d0	B-s2 d0	*EN 13501*
M2	M2	*NF P 92 507*
B1	B1	*DIN 4102*
Pass	Pass	*BS 7837*
Pass	Pass	*California T19*
Tested	-	*AS 1530.2*
Pass	Pass	*GOST*
Pass	Pass	*NFPA 701*
8,6%	7%	*DIN EN 410*
7,4%	6%	*DIN EN 410*
81%	82%	*DIN EN 410*
0%	0%	*DIN EN 410*
101	101	*ASTM E 1980*
10%	10%	*DIN EN 13363/1*
5,5 W (m^2.K)	5,5 W (m^2.K)	*DIN EN ISO 6946*
4,6 W (m^2.K)	4,6 W (m^2.K)	*DIN EN ISO 6946*

Colours

Other colours and width on request.

1815- Sandstone



9909 - White

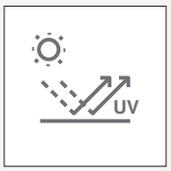
Standard rolls: 3m wide 100 lm
Jumbo rolls: on request

Key features

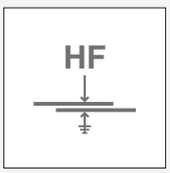
Low wick

Flame retardant

Antibacterial



Excellent
UV resistance



Direct HF
weldable

Lacquering

Top:
E-PVDF

Bottom:
Acrylic

10
years warranty

OCMW Roeselare Facade

Country: Belgium

City: Roeselare

Façade mesh

FACADE
ELEMENTS

Rear-ventilated or decorative façade claddings are a reliable solution. Technical textiles may deliver plenty of improvements, from building aesthetic to construction physical characteristics like weather protection, direct sunlight screening and visual sheltering implentation engaging the building value and components lifespan.

Coating
InvDeep Architectural PVC coating

Top coating (3 options):

1. Printable
2. Mat
3. Glossy

In-Deep

Fabric
High tenacity PES yarns

Overview Façade quality

Directly weldable PVC coated polyester mesh .

FACADE ELEMENTS

Type 2

W090721LV

Basic properties

Total weight - g/m²	700	*DIN ISO 2286/2 1998*
Thickness	1,20 mm	*DIN 5084*
Openess factor	22%	*NBN EN 14500*
Composition	Polyester 1670 dtex - Architectural PVC - in-deep surface treatment	
Roll width	300 cm	
Roll length	50 lm	

Technical specifications

Tensile strength (Warp | Weft)	*N/5cm*	5000 | 4000	*EN ISO 1421/1 1998*
Adhesion	*N/5cm*	120	*ISO 2411 2000*
Tear strength (Warp | Weft)	*N/5cm*	1400 | 1100	*DIN 53363*
Temperature resistance		-30/+70°C	*DIN EN 1876/2*
Fire resistance	*German fire test*	B1	*DIN 4102*
	British fire test	PASS	*BS 7837*
	American fire test	PASS	*NFPA 701*
		PASS	*California T19*
Reaction to fire	*Euroclass*	bs3D0	*EN 13501-1 + A1 2009*

Printable lacquer

Our in deep lacquering process provides limitless creative design solutions for facade cladding. This lacquer is highly suited for printing with any design, colour or pattern to unrivalled quality, producing stunning real images and match any colour system. Any colour on your request.

Lacquering process

Differently than other lacquering systems which are un-homogenously covering the substrates, our advanced lacquering process is applied in a way that the protective substrate is well embedded all-around the mesh. Perfect embedment of the material.

Coating process

In alternative to not proper knife-coating systems, Sioen advanced and unique production process for meshes consists in dip-coating the open mesh fabric immediately after being constructed directly on the weaving loop. This unique on-line technique grants a very homogeneous deeper distribution of the coating mass around the polyester yarns, implementing hugely the penetration of the protective layers so that the materials are able to perform constantly over their service life.

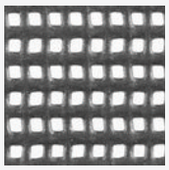
Colours

Other colours and width on request.

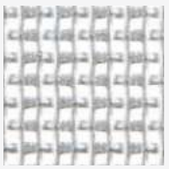
0011 - *White*

1815 - *Sandstone*

7002 - *Grey*



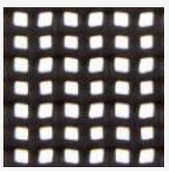
7185 - *Anthracite*



7509 - *Silver*

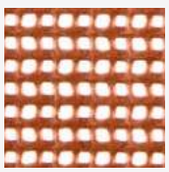
7517 - *Aluminium*

7515 - *Dark Silver*



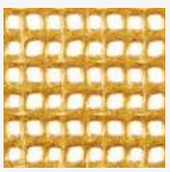
7999 - *Black*

1587 - *Champagne*



3592 - *Copper*

8500 - *Bronze*



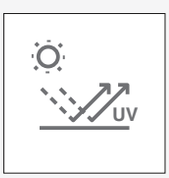
1588 - *Gold*

Key features

Printable

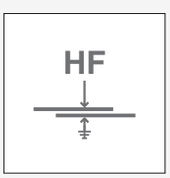
Flame retardant

Antibacterial



Excellent UV resistance

In-deep coating technology



Direct HF weldable

12
years warranty

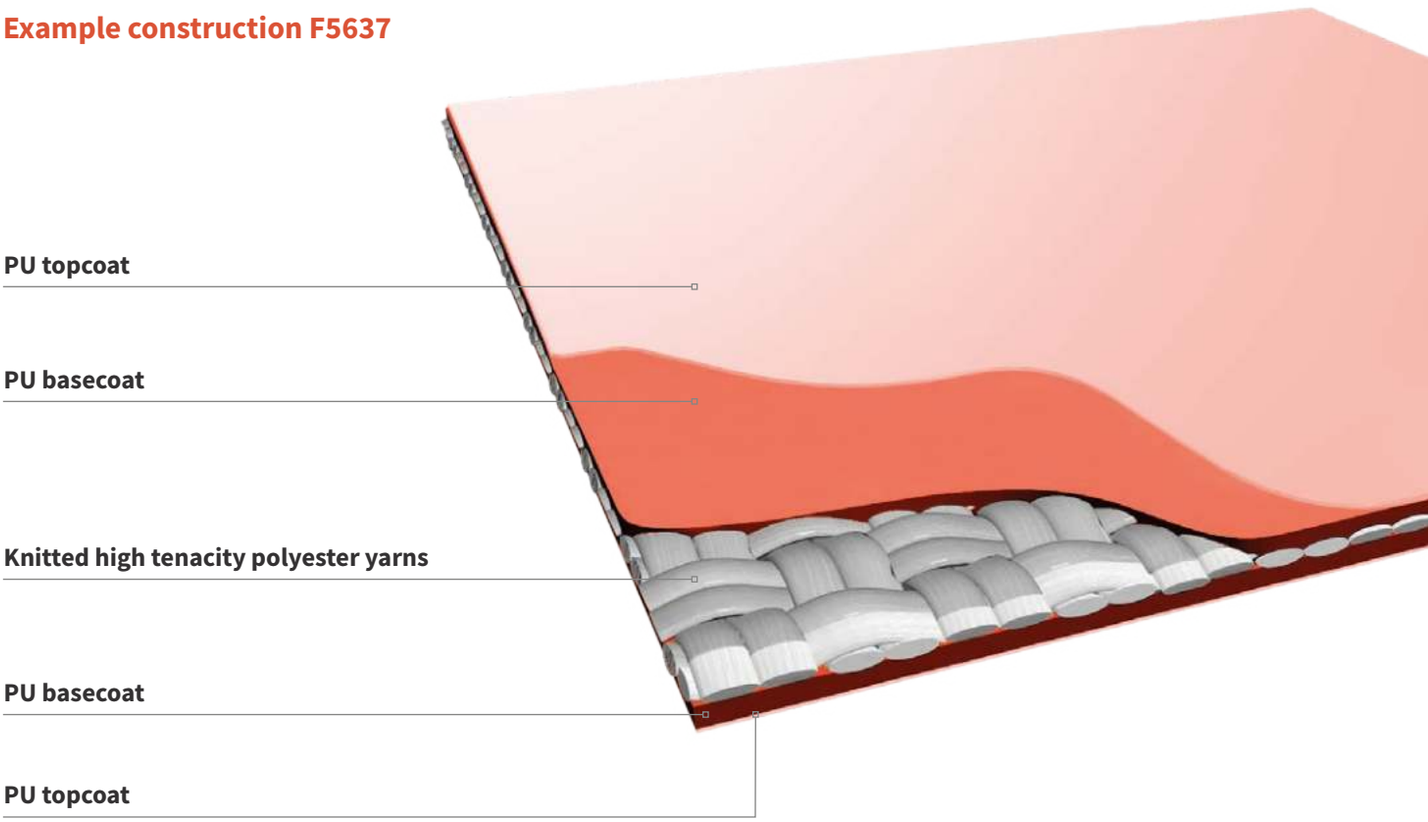
Flexout

FLEXOUT

Stretch tent membranes are a popular choice for making elegant and modern tents with great looks and organic shapes.

Explore the creative potential of using stretch membrane to create a unique and modern landscape atmosphere welcoming your guest at any event.

Example construction F5637



Overview Flexout qualities

FLEXOUT

Basic properties

	F5639	F5653	F5669 F5670	F5637	
Total weight - g/m²	730	550	195	290	*ISO 3801/5*
Standard width (1)	145 cm	145 cm	145 cm (F5669) 220 cm (F5670)	145 cm	
Coating	PVC + topcoat	PVC + topcoat	PU	Double side PU + PU topcoat	
Regular roll sizes	70 lm	70 lm	100 lm	100 lm	

Technical specifications

		F5639	F5653	F5669 F5670	F5637	
Breaking strength (Warp/Weft) - N/5cm		1200/900	750/500	400/300	400/300	*ISO 13934*
Tear strength (Warp/Weft) - N		100/180	70/100	40/40	50/45	*ISO 4674A1*
Elongation at break (Warp/Weft)		110%/110%	90%/100%	100%/100%	90%/120%	*ISO 13934*
Adhesion (Warp/weft) - N/22mm		>10	>10	>12	> 18 ext / > 18 int	*DIN 53357*
Temperature resistance		-20/+70°C	-20/+70°C	-30/+70°C	-30/+70°C	*DIN EN 1876/2*
Microbial resistance		ok	ok	ok	ok	*ISO 846A*
Fire resistance	*French Fire test*	M2	M2	M2	M2	*NF P 92 507*
	German Fire test	B1	B1	-	B1	*DIN 4102*

© stretched.be

Flexout membranes offer added value for your next event.

PVC and PU coated fabrics for stretch tents are ‘the new kid on the block’, offering the best possible alternative for successful and original happenings. The fabric creates a warm and cozy atmosphere, allowing numerous shapes adapted to the environment. All of the products offer excellent protection against water, wind, sun and dust. Obviously the material also complies with international fire safety standards.

Contact Sioen Fabrics for custom design:

Z.I. du Blanc Ballot
Avenue Urbino 6
B-7700 Mouscron - Belgium
sioenfabrics@sioen.com

© stretched.be

Colours

Other colours and width on request.

5110 - White

5806 - Black

9535 - Red

7151 - Chinoh

7149 - Chinoh

7232 - Grey

7214 - Grey

7710 - Taupe

MTO (Made to Order) fabric,
Minimum of 1000 lm,
Possibility to adapt the roll sizes.

Key features

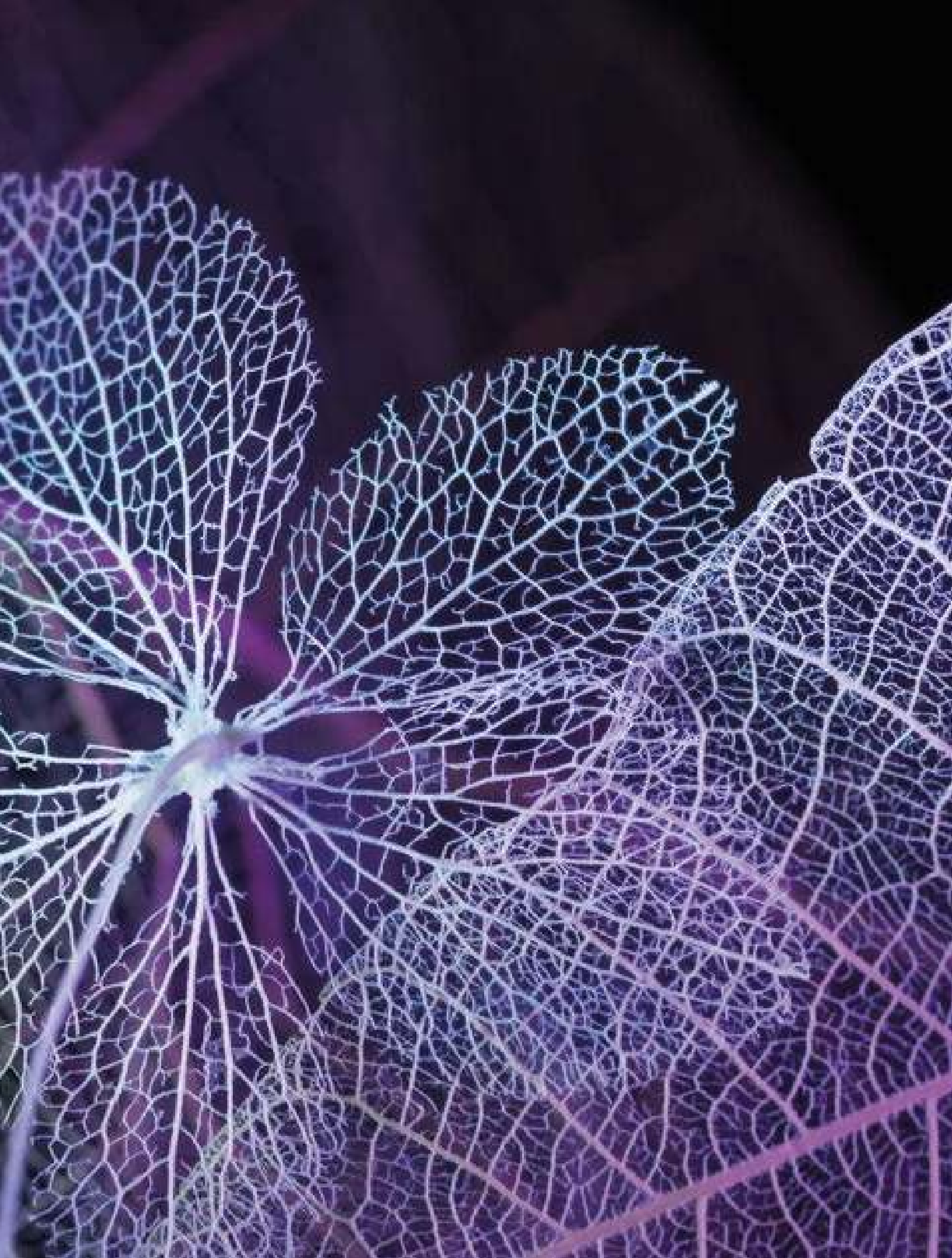
Stretch

Flame retardant

Water repellent

UV resistant

2
years warranty



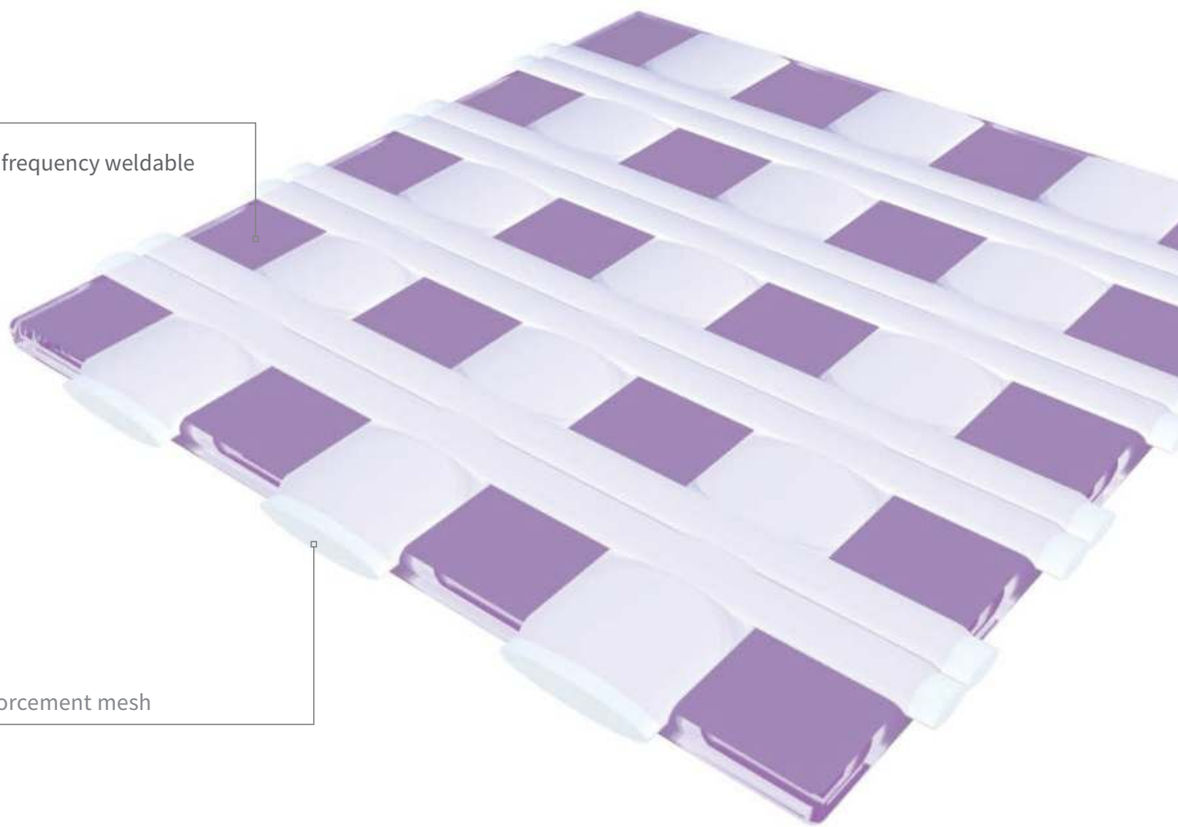
Fluoscrim

FLUOSCRIM
HIGHLY TRANSLUCENT

Sioen uses innovative processes for the creation of this new fluoscrim product. The material excels in its dimensional stability, solar performances, ease of transformation and confection to unlock new architectural landscape freedom featuring advanced climate control.

Coating
Fluorocarbon Coating

Highly translucent + high frequency weldable



Fabric
Low wick glass fibre reinforcement mesh

Overview Fluoscrim quality

Highly translucent composite membrane for permanent tensile architecture applications.

FLUOSCRIM
HIGHLY TRANSLUCENT

Type 2

T2199

Basic properties

Total weight - g/m²	850	*DIN EN ISO 2286/2*
Thickness	1 mm	*DIN 5084*
Openess factor	65%	*DIN 5036*
Standard width (1)	150 cm	

Technical specifications

Breaking strength (Warp/Weft)	N/5cm	4500/4500	*DIN 53363 2003*
Tear strength (Warp/Weft)	N	800/800	*DIN 53363 2003*
Adhesion	N/5cm	200	
Temperature resistance		-30/+70 °C	
Wicking		Low wick	
Fire resistance			
	French Fire test	M2	*NF P 92 507*
Solar values			
	Transmission (Ts)	50%	*DIN EN 410*
	Reflection (Rs)	40%	*DIN EN 410*
	UV transmission (Tuv)	38%	*DIN EN 410*

Easy to weld / Quality seams

- Direct HF weldable with standard equipment.
- Reliable, robust and easy welding.
- Low wick glass fibres.

Long lifetime

- 100% fluoropolymer coating resistant to outdoor UV radiations.
- Life expectancy > 25 years.

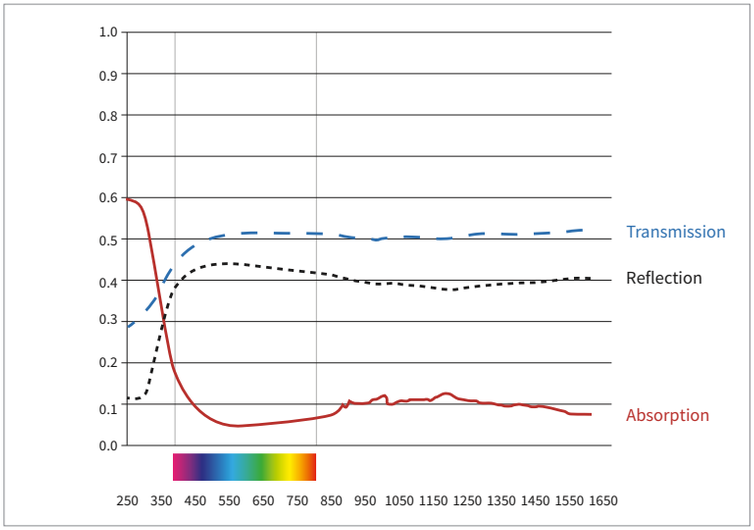
Premium look and performance

- Achieve big span (type 2) with highly translucent material.
- Maximize natural light ambiance.
- Penetration of photosynthetically active radiation for plant growth.
- Optimized Near and mid- infrared radiations reflection for enhanced climate control.
- 100% fluoropolymer coating.
- PVC free material.

Graph 1: Optical properties of Fluoscrim T2199 membrane.

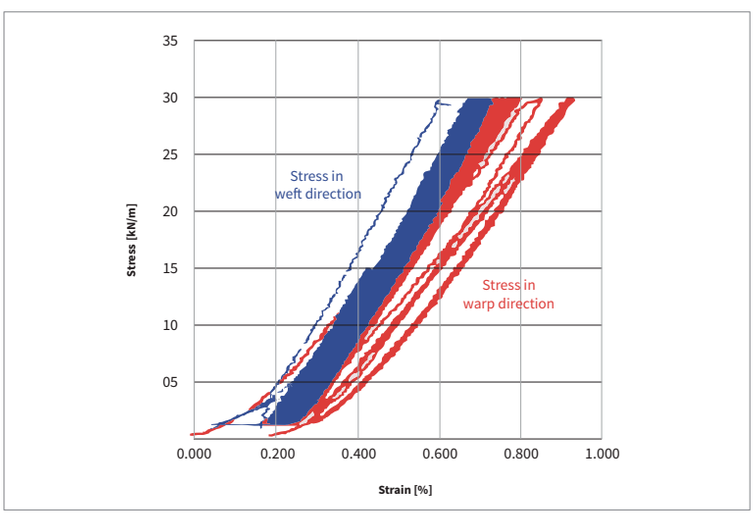
Fluoscrim membrane has superb visible light transmission (T_V = 50%) while engineered to reflect near and mid infrared radiations (R_{NIR} = 40%) to ensure optimal climate control applications.

UV-A transmission (T_{uv} = 38%) combined with UV-B blocking is ideal for plant growth applications.



Graph 2: Biaxial test result Stress= f (Strain) under Young's modulus biaxial test protocol.

- Excellent overlap in warp and weft directions.
- Very limited material elongation under stress.
- Excellent dimensional stability.



Colours

Other colours on request.

High translucency

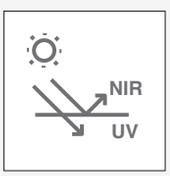
Standard rolls: 150cm 50lm
**Specialty product, on demand*

Key features

Low wick

Flame retardant

PVC free

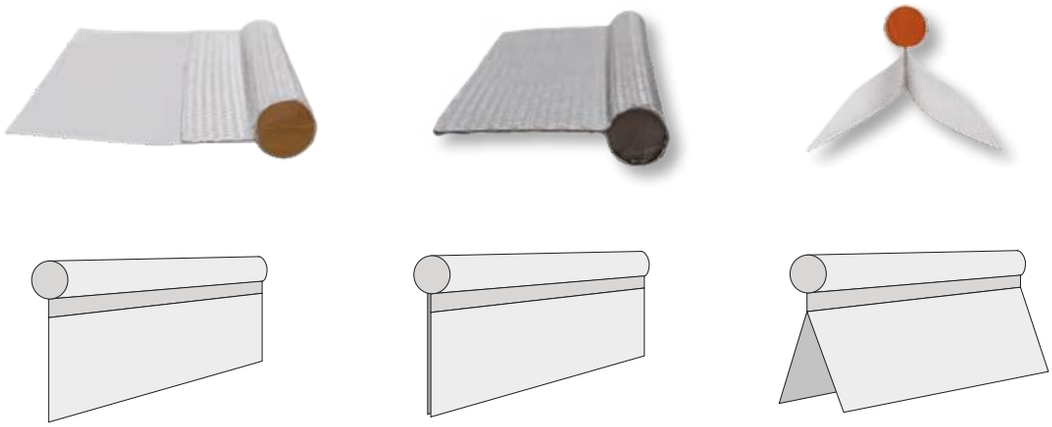


50% translucency

15
years warranty

Keders

Keders are an optional connection between our membranes and the supporting structure. As market leader, Coatex offers a wide range of standard and customized keders, using different welding techniques to obtain a strong and lasting keder. Single or double flag, diameter in function of your profile, translucent or opaque,… we can customize the keder that suits your needs best.



Simple **Double closed** **Double open**

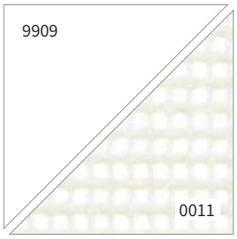
Contact Coatex
for custom design:

Industriezone Sappenleen
Sappenleenstraat 3-4
B-8970 Poperinge - Belgium
coatex@sioen.com

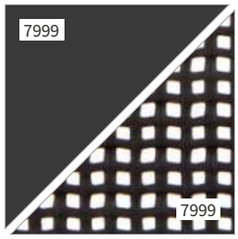
Available Colour Range

Colours and contextures presented here are given as indicative colours.
Please check samples for physical correspondence.

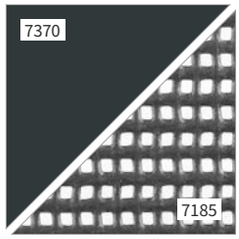
White



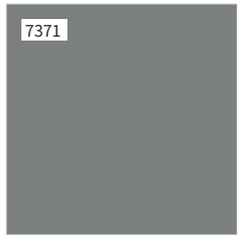
Black



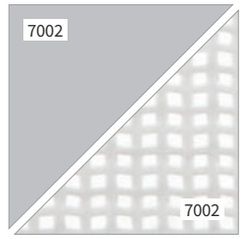
Anthracite



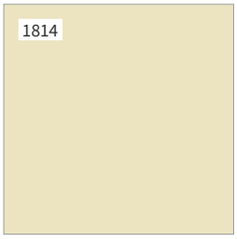
Shadow



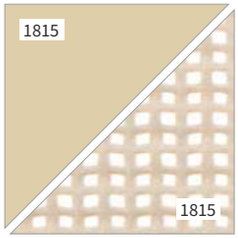
Grey



Cream



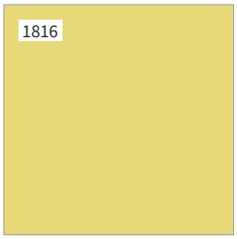
Sandstone



Peanut

Wallnut

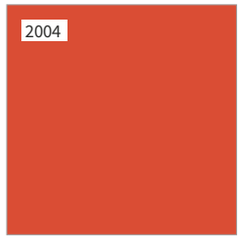
Lemon



Sunflower

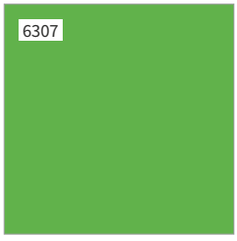
Orange

Pumpkin

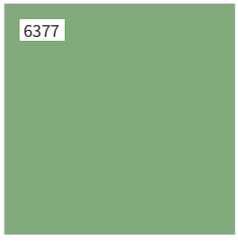


Chili

Lime



Moss

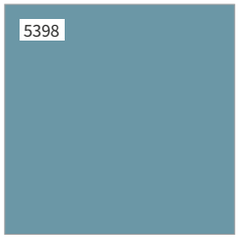


Forest

Fern

Sky

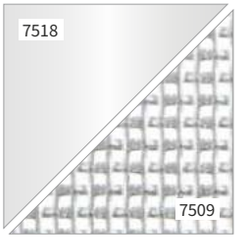
Olympic



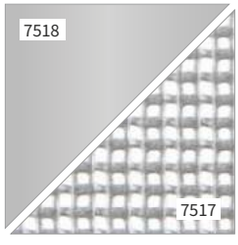
Yale

Space

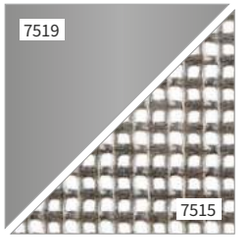
Silver



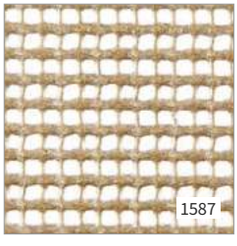
Aluminium



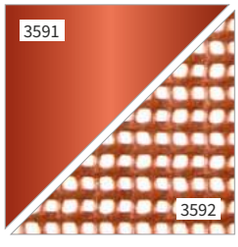
Dark Silver



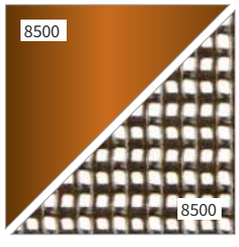
Champagne



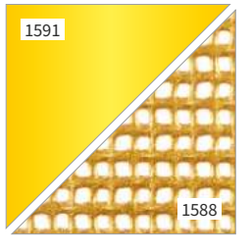
Copper



Bronze

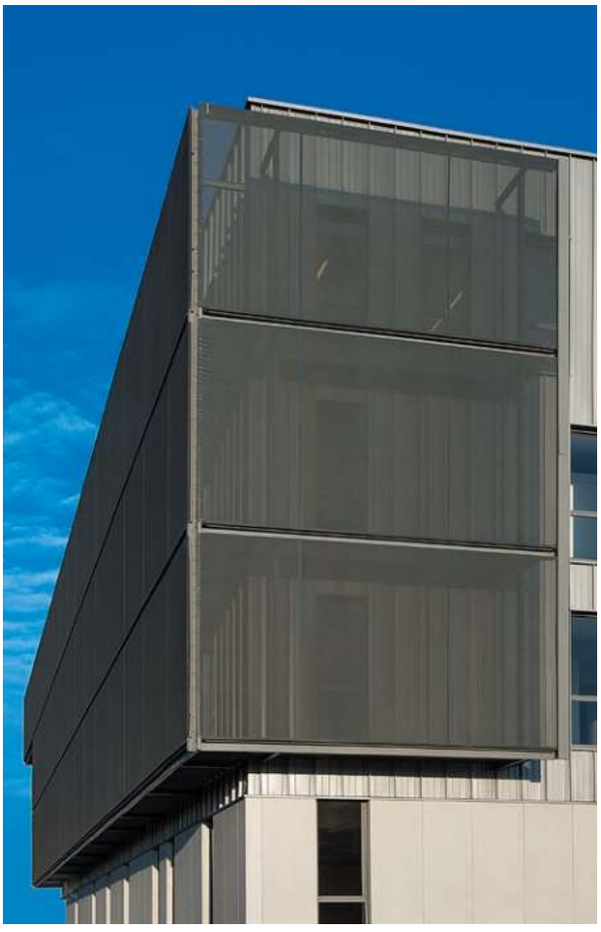


Gold



References

Check our references
sio.to/4sy6v



Check our references
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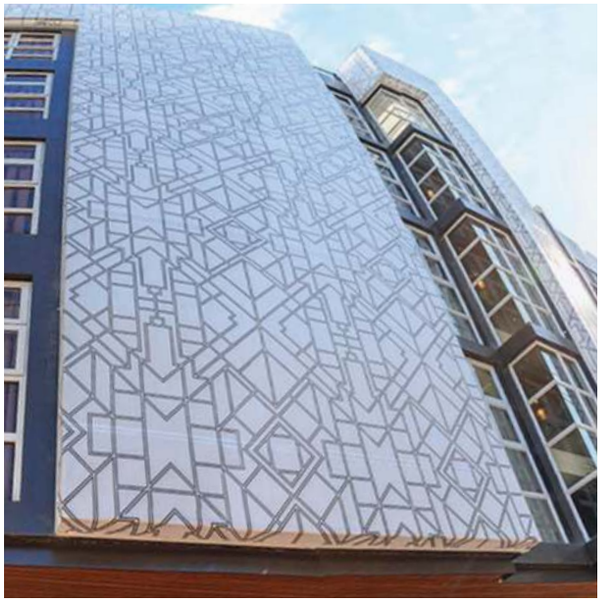
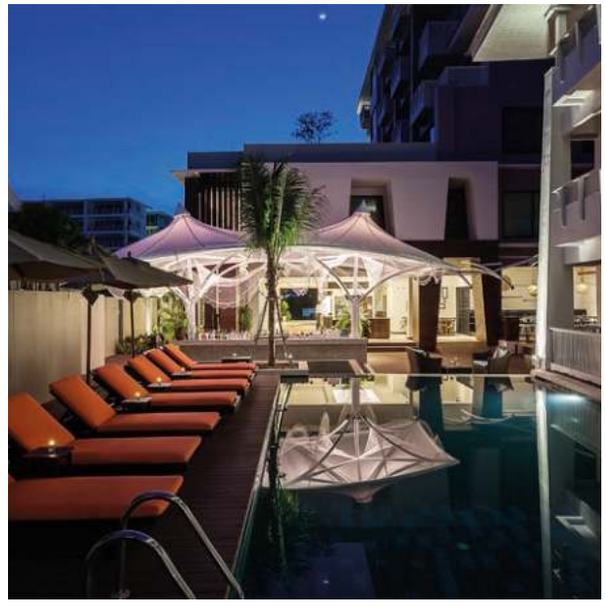



POLI
GENIUS

Check our references
sio.to/4sy6v

Check our references
sio.to/4sy6v



Textile buildings

From an engineering point of view textile membranes are thin fabric structures with a consistent thickness, which by virtue of their surface shape and inherent deflection behavior, are able to support the imposed loads requested by Building Codes. To create textile structures, the membranes are modestly pre tensioned to enhance the building's skin stiffness.

© 2016 - Pesaro

Refined structures for new landscapes

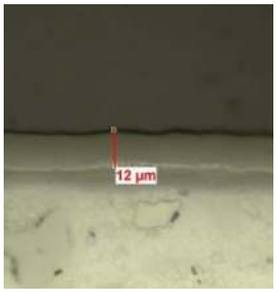
Textile membranes are a feast for a designer; different heights and irregular inclinations his tools to turn a fabric into new landscapes. A constant quest and challenge to create widespan enclosures of great spatial interest and variety with only minimalistic structural support!

Overall textile buildings combine creativity and aesthetics with frugal use of materials, short construction periods, long life span and limited budget.

These state-of-the-art technologies and innovative textile materials push the boundaries of emerging projects by the full replacement of conventional building materials or by intelligent combinations.

New proprietary PVDF topcoats

Top coats are applied in order to ensure good cleanability, good slip and processing. Furthermore they offer an efficient barrier for plasticizer migration and weather impact. Our top coat is a balanced compromise between various technology parameters including optimized weldability, excellent weathering resistance and long lasting aesthetics.



© 2016 - Cross section top coat

Finishing for excellence

Backed with a strong experience in developing technical textiles, the Sioen R&D group (in close cooperation with its chemical division) produced a new patented generation of top coats which provides a major step forward in durability combined with long lasting soil resistance and direct weldability.

To protect the coated fabric against environmental influences, all our architectural membranes benefit from this new generation PVDF lacquer. Beside the major dirt resistance improvements, the membranes are also instant weldable to make the material easier to handle: guarantee for an excellent longevity and long lasting esthetics.

Directly weldable PVDF

All our architectural membranes are directly weldable without preparation. This is a guarantee for perfect seams. Furthermore, our low wick treatment contributes to maintain robust seams during the lifetime of the structure.

Both side PVDF topcoats

Fluomax and Fluo^{2}max membranes are lacquered on both sides with our new patented generation PVDF topcoats.

Dirt Resistance / easy cleaning

Our membranes benefit from our unique low surface tension topcoats which provide excellent dirt resistance and durable easy cleaning properties.

New TiO_2 prime coat barrier

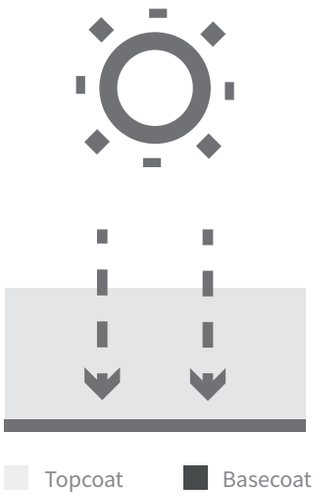
Achieving outstanding UV resistance in permanent structures

FLUO²MAX™
TiO_2 + PVDF

Since decades TiO_2 is known as a superb UV barrier. An extreme thin layer already ensures a very efficient protection against UV radiations. For the same reason it is being used in cosmetics as sun blocker as it provides an excellent UV protection against the adverse effects of UV radiations.

By combining this technology with its new generation of Fluomax PVDF topcoat, Sioen achieved in developing a highly innovative coating which blocks all UV and by this preserves the fabric from the adverse weathering influences, result of which is a long lasting membrane.

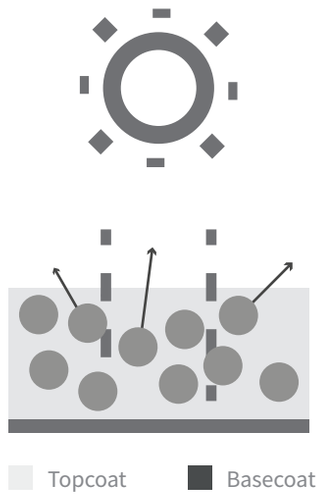
The Fluo²max technology therefore allows us to issue a warranty of 20 years. For permanent architectural structures.



Chemical UV Filter

No particles

- UV protection limited by absorption of UV rays by “filter molecules”.

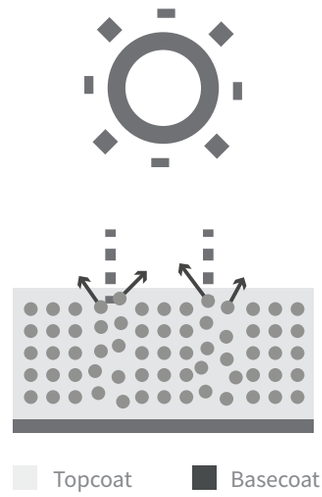


Standard TiO_2 technology

Coarse particles

- UV protection due to absorption, reflection and scattering.

Not very effective, as a proportion of UV rays can pass through the topcoat without hitting a particle.



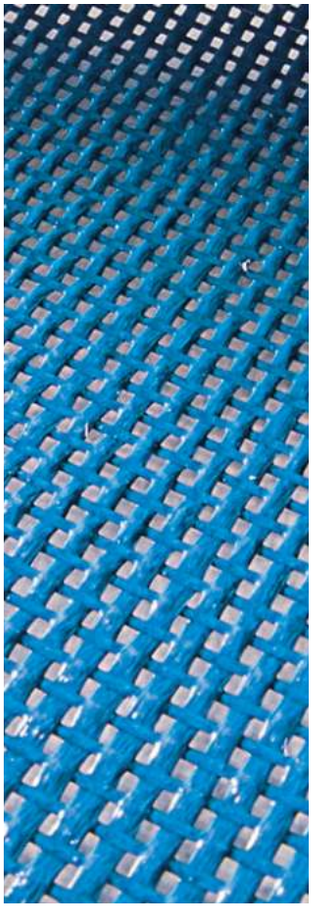
Sioen TiO_2 technology

Nanoparticles

- UV protection due predominantly to absorption of UV rays by TiO_2 nanoparticles.
- Highly efficient UV reflection and scattering

Architectural membranes properties

During its lifetime a textile architecture fabric can possibly be exposed to numerous, severe and sometimes unexpected weather conditions which could permanently damage the fabric.



Low wick

Preserving mechanical and aesthetical properties.

When the woven base fabric is directly exposed to extreme humidity, wicking might occur.

Wicking is the migration of water between the filaments of the fabric which results in fungal and bacterial growth. The phenomenon initially leads to poor esthetical appearances like yellowish, brown lines and stains all over the base fabric and at the seams. Worst case scenario is a drastic reduction of the physical performances leading to failure of the structure.

Thanks to our vertical integration, all Sioen high tenacity polyester fabrics dedicated for textile architecture purposes undergo to our in house engineered low-wick anticapillary treatment, preventing wicking and safeguarding the mechanical properties. This treatment efficiently avoids all water, dirt and fungus absorption inside the fabric and ensures perfect and long lasting esthetics, minimal discoloration and uniform translucency.

Flame retardancy

Engaging for the most stringent requirements. Building materials should comply to local and international safety regulations. One of the most important properties is the ability of the membrane to avoid fire initiation and propagation over the building structure.

The ability of a fabric to burn or ignite causing fire or combustion is quantified through fire standards. Internationally there is a variety of test protocols to evaluate the flammability of a textile material.
The rating achieved is used in building codes, insurance requirements, fire codes and other regulations governing the use of building materials.

All tensile architecture fabrics are produced using high quality flame retardant additives in order to achieve appropriate flame retardant performances recommended by the building industry. Our materials meet the required specifications; they are: self-extinguishing, with low flame propagation and no flaming droplets.

All Sioen Textile architecture membranes comply with the following fire standards:

- **DIN 4102:1998**:
  Fire test to building materials – Classification
- **EN 13501-1:2007+A1:2009:**
  Fire classification of construction products and building elements. Classification using test data from reaction to fire tests
- **NF P92-507 Février 2004:**
  Sécurité contre l'incendie - Bâtiment - Matériaux d'aménagement - Classement selon leur réaction au feu
- **BS 7837:1996:**
  Specification for Flammability Performance for Textiles Used in the Construction of Marquees and Similar Textile Structures
- **California Code of Regulations**
  Title 19: Flame Resistant Requirements for Canopies / Tents

Temperature range

Our architectural membranes have a temperature resistance ranging from -30°C to +70°C. The material remain flexible, even at low temperature, for easy handling and installation.

© 2016 - Mobiles 360 Kino

Light and translucency

Bright and consistent feelings.
Light is undoubtedly an integral part of life. In architectural constructions, the duality of light and darkness is a challenge for each construction engineer and architect. A search for the right balance to evoke the sense of feeling or connection with the location as much as possible.

Textile architecture membranes offer the architects the exceptional advantage of combining structural design with the abundant presence of natural light. Due to its very high translucency an ambiance of a natural environment can be created.

Thanks to the uniform translucency, textile architecture membrane can be tuned towards special visual effects as communication or architectural lighting design.

The interior/exterior luminosity transforms the structure into a lighthouse or a signage structure, turning it into a nocturnal reference point.

The uniform translucency of Sioen's architectural membranes is guaranteed through a consistent measurement of batch to batch color translucency deviation, setting the standard for a high quality end product.

Thermal performances

A solution for every needs. Building using textile membranes can show improved thermal gain and energy balances which can be directly attributed to their inherent properties.

Thanks to their high translucency, architectural membranes are characterized by a high incident radiant flux. In order to monitor and to control the energy management intelligent combination of different fabrics are put in place. Insulation is mostly done by using double membranes thus taking advantage of the combination of incident radiation and the insulating air gap in between the 2 membranes.

Our opaque membranes also offer the designers the ability to reduce the high radiation flux.

Sioen also offers low emissivity membranes with the lowest emissivity on the market ($\varepsilon = 0.22$)

The use of Low E membranes in textile architecture ensures the final customer the optimal thermal comfort.

Part of Sioen

Sioen tensile architecture is part of the Sioen group. A textile solution provider with over 110 years of experience. Sioen is a solid partner with an excellent quality reputation, providing technical textiles all over the world.

“Undertaking as many production phases as possible in house offers many advantages: reduced costs, supplier independence, profit maximisation.”

The production of tensile architecture membranes is done in the high end production plants of the group in Europe and in the USA. Our vertical integration is your guarantee for an outstanding product. We produce the yarns ourselves in our highly performant spinning mill in Mouscron (Belgium). We weave technical fabrics on over 250 looms in our weaving mills in Belgium and Germany.

We produce the pigment pastes in our chemicals plants in Bornem (Belgium). And finally, we coat in our production plants. With 6 coating techniques, we can put any polymer on any carrier. We always come up with the product you require.

Vertical integration

Undertaking the complete production phases in house, from yarn to finished product offers a competitive edge to our customers: from the control of the full production chain to the quick response to customer's needs with competitive prices.

Spinning

Sioen has one of the most modern spinning mills in the world with an output of approximately 16 000 tons of polyester high-tenacity yarns (up to 6 600 dTex and more).

We rigorously select our best high tenacity polyester yarns for tensile architecture application at this stage.

Weaving

Sioen specialises in the production of high quality technical industrial fabrics. All our production plants are equipped with their own beaming, weaving, senging, slitting and inspection equipment.

Architectural fabrics are woven in our dedicated zone in order to maintain a high fabric quality and consistency.

Chemicals

Sioen possesses its own chemical division, this allows to provide a fast, flexible, service-oriented and tailor made products, such as pigments pastes, vanishes and inks.

Our architectural membranes benefit from our extensive « savoir faire » in order to provide the best formulations for your applications.

Coating

Sioen is the only coater in the world who masters at industrial level 5 different coating techniques. This allows to satisfy a multitude of applications & markets.

Sioen's tensile architecture range is one of our finests and is kept under permanent inspection and benefits from our latest improvements to satisfy our most demanding customers.

Services and solutions

Coatex and Saint Frères Confection are the final step in the vertical integration within the Coating Division. We deliver total solutions for specific applications. We have a large spectrum of production techniques such as cutting (laser, knife), welding (HF, Hot Air, Hot Wedge), sewing, assembling, spray-printing, laminating and many others. We transform technical fabrics into finished and semi-finished solutions for a wide range of applications.

ISO 9001 certified

Quality management principles, continual improvements, strong customer focus and daily involvement of our top management are engraved in Sioen's DNA. For now more than 20 years Sioen coating is ISO 9001 certified to ensure the delivery of reliable products to demanding customers applications.

Using ISO 9001:2015 helps ensure that customers get consistent, good quality products and services, which in turn brings many business benefits.

Sustainability and CSR

As a responsible corporation, Sioen actively wants to contribute to a better world. Our CSR policy goes beyond minimising negative impact on society through energy saving, sustainable mobility policy, solar power. We focus on the positive, on what we are giving back to society through employment, charity, taxes, community work.
We also focus on developing products and services that make a positive contribution: they relieve customer tasks, simplify processes, save costs and are sustainable.

Circular economy

Sioen holds all the steps of the production value chain in house. This vertical integration chain (yarn extrusion, weaving, masterbatch and coating) unlock a circular economy system where we can actively reduce our impact on resources inputs and waste, emission and energy spills beneficial for the preservation and optimisation of the resources.

Recycling

In the Sioen PET recycling unit, we recycle all polyester production waste, such as hard lumps and yarns from the spinning-mill and edges and fabrics from the weaving mills.

Sioen is actively collaborating with re-use and recycling of coated technical textiles. Through our membership of the plastic sheet industry association IVK and VinylPlus, we are involved in the VinylPlus: Epcoat system which collects and recovers an increasing quantity of used PVC-coated textiles every year.

Active research and development

We innovate in technical textiles to contribute in solving existing and forecoming societal challenges: from demographic growth to resource protection.

As an example our coated textiles are being introduced in green energy windmills. Coated textile is the backbone of turbine ventilation systems. Efficient and lightweight cooling pipes composed with our textiles enhance the weight efficiency and material impact in turbine cooling systems.

Another example of our R&D impact is the development of textile substrates for seaweed cultivation (ie. AT~SEA Technology). This seaweed can be used for biofuels, bioenergy and for the production of biodegradable yarns. The latter closes the circle as it is used in the production of technical textiles all over again.

Check our CSR manifest
sioen.com/en/group/csr

Technicity

Our architectural membranes are the refine and pure expression of "savoir faire" in specialty technical textiles. The collection features the company's state-of-the-art developments, giving the architectural fabrics a significant advantage in terms of durability, quality consistency, low maintenance and weathering stability.

Notes

Modification date: April 10, 2019 1:44 pm

SIOEN
Fabriekstraat 23
B-8850 Ardooie
België
Tel. +32 51 74 09 00
info@sioen.com

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www.sioen.com

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