

TENSILE ARCHITECTURE

C l a s s i c r a n g e

FLUOMAX™
PVDF LACQUERING

BOTH-SIDES FLUORINATED UV TOP-COATED FABRICS



**LOW
WICK**

One-g

STABILIZING
COATING SYSTEM

SIOEN INDUSTRIES
ENGAGED DURABLE PERFORMANCES



WIKI'S



Sioen Fluomax™ for long lasting and good performing TA applications, worldwide

HOW TO DO IT IN BRIEF

Technical textiles (or fabrics) for tensile architecture applications are composite products with differing behaviours. Choosing the right product is a matter of defining the various project requirements, including mechanical, physical and aesthetic functionalities. Processing these fabrics to reach the desired results, however, is a matter of know-how. This small wiki will help define the required properties and support the production process.

TENSILE ARCHITECTURE DESIGN BASICS

Tensile surfaces are basically characterized by curved shapes. They always have to be double-curved. A simple sail, for example, needs at least 4 points of tension. The surface shape and all anchoring elements need to be designed to withstand all possible loads.

CHOOSING THE RIGHT FABRIC STRENGTH

The mechanical behaviour of the fabric is a critical factor for tensile surfaces. The fabric is a structural element and as such has to meet the necessary engineering and safety criteria. It is a good rule to estimate a proper safety factor by considering the maximum working load.

CUTTING AND PATTERNING

In the final stages of the design process, the surface is patterned into fabric parts in 2D, for assembly by welding in 3D shape. Patterning is a process of accurate geometrical definition, carefully dimensioning the single pattern and the precise percentage of decompensation.

WELDING AND ASSEMBLY

SIOEN fabrics can be easily welded with high frequency machines or by hot air processes. It is good practice to take the minimum seam width for the type of fabric used. Those are 40mm for type I, 60mm for type II and 80mm for type III fabrics.

PACKAGING AND INSTALLATION

While Sioen fabrics fold well, in packaging the finalized surface, thought must be given to optimal folding so as to avoid dangerous or damaging unfolding tasks on the worksite. Installation is the real know-how part of the process as here, besides of fundamental knowledge, also great care and skill are mandatory. Expertise is required during lifting and tensioning of the surface. Optimum weather conditions should be sought for these operations, never below 5°C or at wind speed over 5 m/s. Lifting and installation operations during rain weather shall consider proper water evacuation or shall simply be avoided.

INSPECTION AND MAINTENANCE

Permanent monitoring of the project's performance is essential. Sioen fabrics are engineered for long-lasting properties, but visual inspections must be conducted to check for obvious damage or for other deficiencies. The maintenance process needs to include:

- periodical or specific controls where necessary
- periodical or specific cleaning if needed

Eventual repairs to the fabric are an easy task but require an expert hand.



FOR MORE INFORMATION ON HOW TO USE THE FABRIC, CHECK OUR WEBSITE
WWW.SIOEN-ARCHITECTURE.COM

FABRICS



FLUOMAX™ / T0108 / 650 gr.

15 YEARS WARRANTY | PES | PVC COATED
1100 DTEX | HIGH-GLOSSY PVDF
650 gr./M² | TYPE 0



FLUOMAX™ / T1108 / 725 gr.

15 YEARS WARRANTY | PES | PVC COATED
1100 DTEX | HIGH-GLOSSY PVDF
725 G/M² | TYPE 1



FLUOMAX™ / T2106 / 900 gr.

15 YEARS WARRANTY | PES | PVC COATED
1100 DTEX | HIGH-GLOSSY PVDF
900 gr./M² | TYPE 2



FLUOMAX™ / T2108 / 1050 gr.

15 YEARS WARRANTY | PES | PVC COATED
1100 DTEX | HIGH-GLOSSY PVDF
1050 gr./M² | TYPE 2



TENSILE ARCHITECTURE

VALUES

LIST OF PROPERTIES	MEASUREMENT METHODS/ CLASSIFICATIONS	MEASUREMENT METHODS/ CLASSIFICATIONS					
		T0108	T1108	T2106	T2108	T3108	T4108
MATERIAL COMPOSITION							
BASE FABRIC	(DIN) ISO 2076	PES	PES	PES	PES	PES	PES
YARN IN DTEX	(DIN) ISO 2060	1100	1100	1100	1100	1670	1670
TOTAL WEIGHT IN gr./M ²	EN ISO 2286-2	650	725	900	1050	1150	1350
THICKNESS IN MM		0.55	0.60	0.75	0.90	1.00	1.15
TOP SURFACE TREATMENT	FLUOMAX™	FINE-TUNED WELDABLE PVDF-LACQUER COMPOUND ON BOTH SIDES, LOW-WICK, MICROBIAL AND FUNGICIDE PROTECTED, UV-PROTECTED					
BACK SURFACE TREATMENT							
MECHANICAL PROPERTIES							
TENSILE STRENGTH IN N/50 MM	EN ISO 1421/1	2900/2700	3000/3000	4300/4200	4300/4200	6000/5500	8000/7000
TEAR STRENGTH IN N	DIN 53363	300/300	300/300	600/500	600/500	900/800	1200/1200
ADHESION N/5CM	EN ISO 2411	120	120	120	120	120	120
CRACK RESISTANCE	100000 X DIN 53359 A	NO CRACKS					
PHYSICAL PROPERTIES							
LIGHT TRANSMITTANCE (%)	550 NM	9%	8%	6.5%	5%	4%	3%
REFLECTION		87.5%	88%	89%	90.5%	91%	92%
ABSORBTION		3.5%	4%	4.5%	4.5%	5%	5%
LIGHT FASTNESS	DIN EN ISO 105 B02	7 - 8 NOTE					
TEMPERATURE RESISTANCE		-30°C / +70°C					
FIRE CLASSIFICATION		B1 (DIN4102), M2 (NFP 92507), EN13501-1:B-S2-D0, BS 7837, CALIFORNIA T19, GOST					B1 (DIN4102), GOST EN13501-1, C-S2-D0
WARRANTY (Y)		15 YEARS					
STANDARD ROLL WIDTH	CM	250					

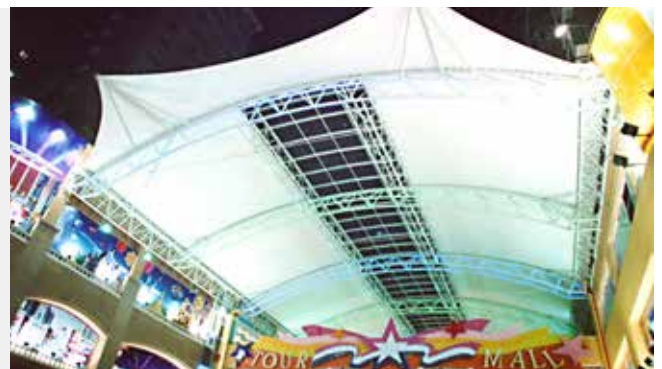
FLUOMAX™ / T3108 / 1150 gr.



15
YEARS
WARRANTY

PES
1670 DTEX
1150 gr./M²

PVC COATED
HIGH-GLOSSY PVDF
TYPE 3



FLUOMAX™ / T4108 / 1350 gr.



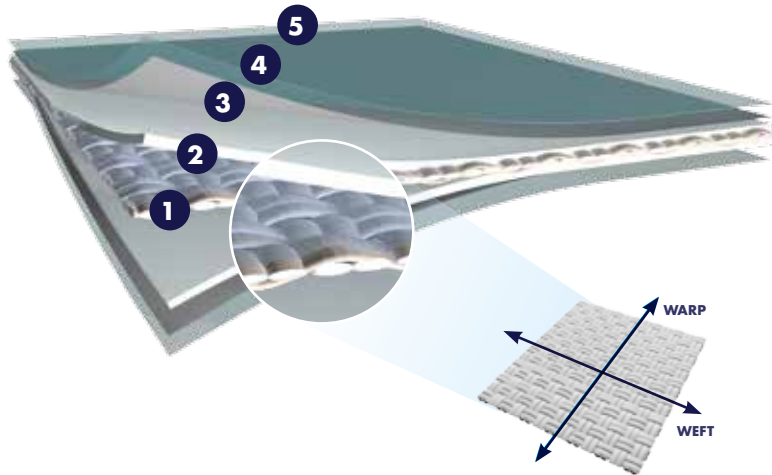
15
YEARS
WARRANTY

PES
1670 DTEX
1350 gr./M²

PVC COATED
HIGH-GLOSSY PVDF
TYPE 4



SIOEN +



SCHEMATIC COMPOSITION OF THE FLUOMAX™ ARCHITECTURAL FABRIC

1. Pre-treated base fabric PES high tenacity yarn –extra strong, stabilised, anti-capillary low-wick treated and flattened
2. Double-side impregnation coating layer for extra PES protection and increased adhesion properties to the PVC substrate
3. Double-side highest quality PVC main coating layer highly pigmented with UV stabilizers, anti-mould, fire-retardant and flexing additives
4. Double-side binding primer layer for anti-peeling lacquer adhesion, pigmentation protection and foldability resistance
5. FLUOMAX top coat lacquering layer grants a great cleaning ability, perfect UV resistance and still perfect weldability

One-g^o COATING PRODUCTION SYSTEM

Our unique state-of-the-art machinery allows to coat back and front side of the fabrics in one run, avoiding stop-and go in between the various layering and lacquering processes. Herewith the product is not exposed to unfavorable thermal or mechanical



shocks, so that the final product is unbeatable quality wise. The One-g^o process provides an extraordinary product stability, flat stretched fabric with better overall distensile properties and short lead times.

DEDICATED R&D CUSTOMIZED DEVELOPMENT

At our central research and development center, our dedicated team of professionals makes tensile architecture their daily business. This new range, with new and exclusive yarn formulations, techniques and lacquering, is the result of intensified collaboration between our researchers, external specialists, universities



OVERALL FLUOMAX™ ADVANTAGES

- State of the art seamless double-side knife-coated quality
- Clear white visual effect
- Anti-capillary low wicking treatment
- Flat, stable mechanical properties
- Perfect weldability
- Cleaning ability greatly enhanced
- Perfect UV resistance
- Protection against moisture
- Resistant to temperature variation
- High abrasion resistance
- Largest choice of widths on the market

WIDTHS

- 218 cm - 85.83 inch - 7.15 feet
- 250 cm - 98.43 inch - 8.2 feet
- 300 cm - 118.11 inch - 9.84 feet



COMMITTED

Sioen is ethically and ecologically committed to invest in sustainable business processes and relationships. We strive to preserve and improve the global environment through a pro-active environmental policy. Our internal recycling systems and the respect of the EU norms and certification allow us to be a reliable partner for customers and suppliers.



PROCESSES



FULL INTEGRATION AND IN-HOUSE SUPPLY-CHAIN CONTROL:
 All capable resources are vertically fully integrated, making us the only full service provider able to offer the entire production process in-house. Our own portfolio ranges from chemicals to yarns, raw fabric and pigment pastes to coating and lacquering of technical textiles. Our capability is ensured through 5 coating techniques in 7 coating plants, 3 weaving units and one spinning mill all over Europe.



SIOEN INDUSTRIES

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