

WE OFFER

Asma-Germe is an International Tensile
Architecture Specialist Company and
provides solution with all available
materials.

DESIGN

ENGINEERING

CONSALTING

FABRICATION

INSTALLATION

MAINTENANCE

for

ARCHITECTURAL TENSILE STRUCTURES

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ISTANBUL/TURKEY



PVC

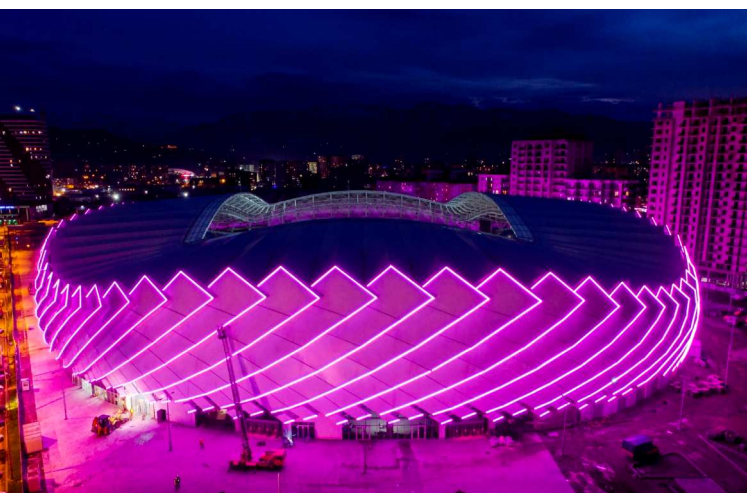
PVC-COATED
POLYESTER FABRIC



AG
ASMA GERME



Batumi/GEORGIA



PVC-coated polyester fabric

	PVC-coated polyester fabric
Joining methods	High-frequency and impulse welding
Long-term stability	Good UV stability with sufficiently thick coating, good chemical resistance
Sensitivity to flex cracking	Highly resistant to flex cracking, suitable for convertible systems
Sensitivity to soiling	Vulnerable to soiling, better with top coat, e.g. fluoride lacquer
Reaction to fire (Euro class to DIN 4102)	B1
Standard colours	White as standard, other colours available
Weight per unit area to DIN 55 352 [g/m ²]	Type I: 750 Type II: 900 Type III: 1100 Type IV: 1300 Type V: 1450
Tensile strength (warp/weft) to DIN 53 354 [N/50 mm]	Type I: 3000 / 3000 Type II: 4200 / 4000 Type III: 5800 / 5400 Type IV: 7500 / 6500 Type V: 10 000 / 9000
Tear propagation resistance (warp/weft) to DIN 53 363 [N]	Type I: 300 / 300 Type II: 500 / 500 Type III: 850 / 800 Type IV: 1200 / 1200 Type V: 1800 / 1800
Service life	10 - 20 years

Polyester-PVC is widely used for tensile structures. Its high mechanical strength and flex cracking resistance make it a favourite for both permanent membrane roofs and convertible designs.

Polyester-PVC membranes are enhanced for construction uses in order to improve their long-term behaviour. It is especially important to coat the fibres with a so-called low-wick substance in order to prevent moisture being absorbed and dust and dirt particles adhering at exposed edges.

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PTFE

PTFE-COATED
GLASS-FIBRE FABRIC



AG
ASMA GERME



Istanbul/TURKEY



Dubai/UAE

PTFE-coated glass-fibre fabric

	PTFE-coated glass-fibre fabric
Jointing methods	Impulse welding with intermediate foil
Long-term stability	Very good UV stability, very good chemical resistance
Sensitivity to flex cracking	Highly sensitive to flex cracking, unsuitable for convertible systems
Sensitivity to soiling	Very good soiling behaviour, selfcleaning
Reaction to fire (Euro class to DIN 4102)	A 2 (types I and II) B 1 (types III and IV)
Standard colours	White as standard, limited selection of colours
Weight per unit area to DIN 55 352 [g/m ²]	Type I: 800 Type II: 900 Type III: 1200 Type IV: 1500
Tensile strength I (warp/weft) to DIN 53 354 [N/50 mm]	Type I: 3500 / 3500 Type II: 5000 / 4500 Type III: 7000 / 6000 Type IV: 8000 / 7000
Tear propagation resistance I (warp/weft) to DIN 53 363 [N]	Type I: 300 / 300 Type II: 350 / 350 Type III: 500 / 500 Type IV: 500 / 500
Service life	> 20 years

Glass-fibre fabric coated with polytetrafluoroethylene (PTFE, better known as Teflon) is regarded as one of the most durable membrane materials because the coating is self-cleaning and very resistant to chemical substances and mould growth. Lightweight versions (types I and II) with a relatively thin coating are incombustible (DIN 4102 building materials class A2), heavier types are classed only as not readily flammable because of the thicker coating (DIN 4102 class B1). Newly coated material is initially beige in colour when shipped due to the decomposition of the wetting agent in the coating, but fades after erection due to the action of UV radiation (sunlight).

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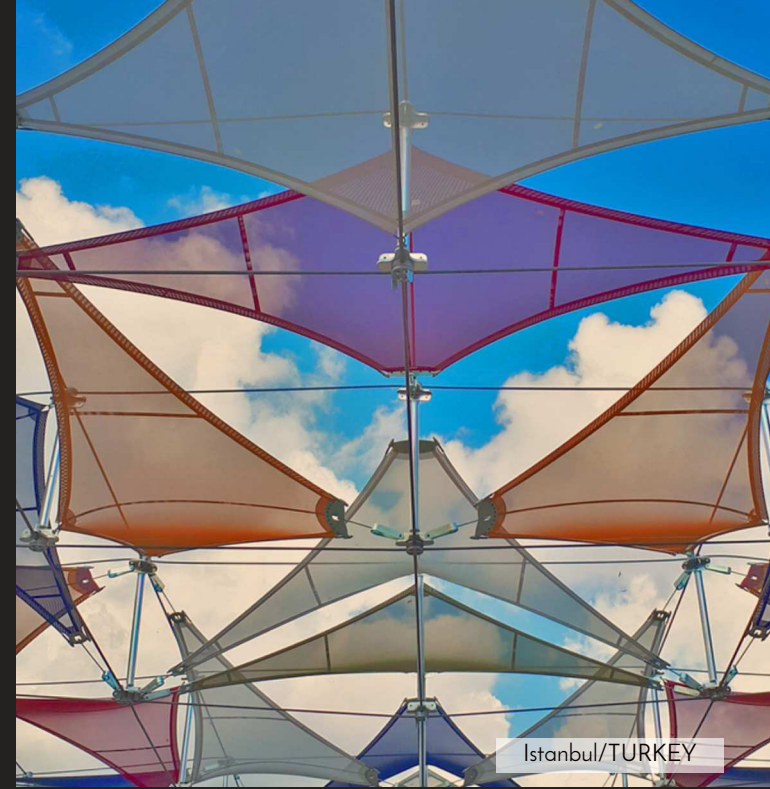
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PVC-MESH

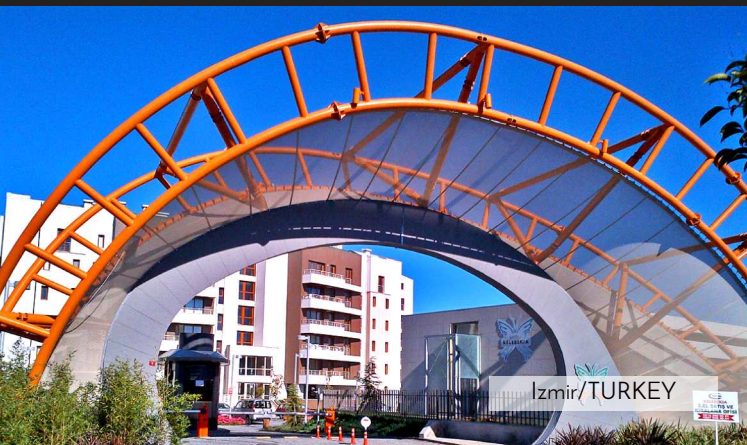
PVC-COATED
POLYESTER FABRIC



AG
ASMA GERME



Istanbul/TURKEY



Izmir/TURKEY

PVC-coated polyester fabric

	MESH - PVC-coated polyester fabric
Joining methods	High-frequency and impulse welding
Long-term stability	Good UV stability with sufficiently thick coating, good chemical resistance
Sensitivity to flex cracking	Highly resistant to flex cracking, suitable for convertible systems
Sensitivity to soiling	Vulnerable to soiling, better with top coat, e.g. fluoride lacquer
Reaction to fire (Euro class to DIN 4102)	B1
Standard colours	White as standard, other colours available
Weight per unit area to DIN 55 352 [g/m ²]	400-1050
Tensile strength I (warp/weft) to DIN 53 354 [N/50 mm]	3000/3000 - 6000/5500
Tear propagation resistance I (warp/weft) to DIN 53 363 [N]	350/280 - 680/680
Service life	7-10 years

Polyester-PVC is widely used for tensile structures. Its high mechanical strength and flex cracking resistance make it a favourite for both permanent membrane roofs and convertible designs.

Polyester-PVC membranes are enhanced for construction uses in order to improve their long-term behaviour. It is especially important to coat the fibres with a so-called low-wick substance in order to prevent moisture being absorbed and dust and dirt particles adhering at exposed edges.

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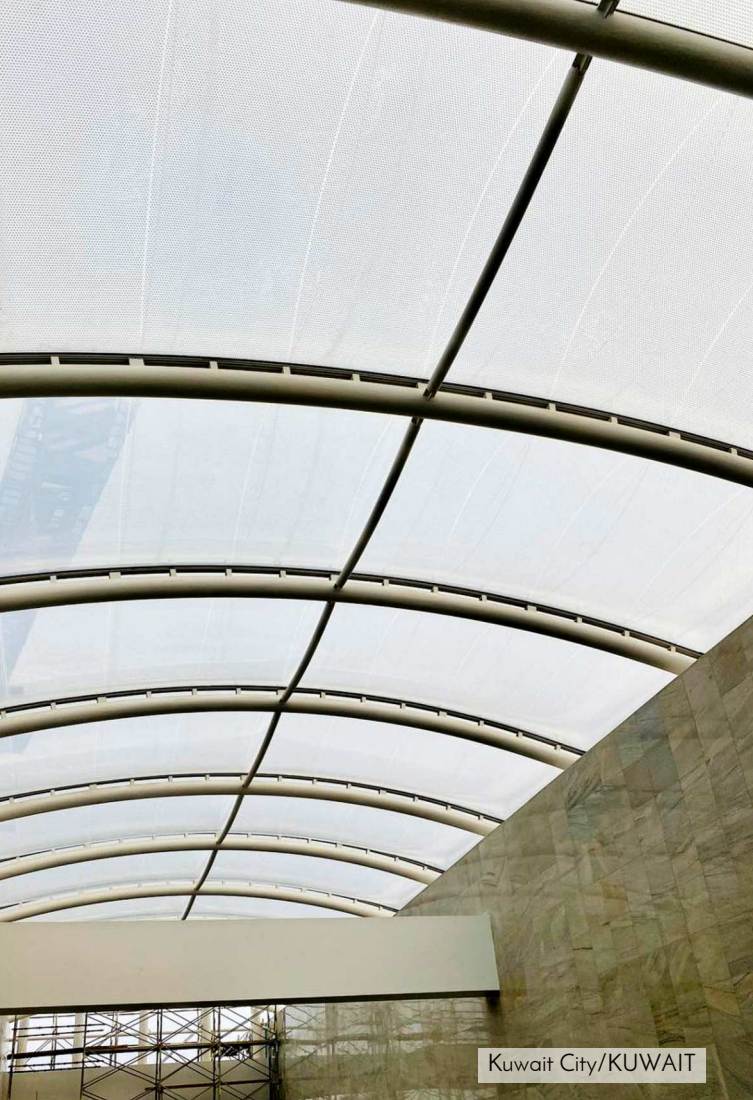
Kuwait City/KUWAIT

ETFE

ETFE FOIL



AG
ASMA GERME



Kuwait City/KUWAIT



Istanbul/TURKEY

ETFE foil

	ETFE foil
Typical applications	Architecture
Density [g/cm ³] (DIN 53 479)	1.75
Standard thicknesses [µm]	12 - 300
Tensile strength [N/mm ²] (DIN EN ISO 527-1)	40 or measured according to DIN 53354 approx. 400 N/50 mm
Elongation at rupture [% of length] (DIN EN ISO 527-1)	> 300
Tear propagation resistance [N/mm] at 23 °C longitudinal/transverse (DIN 53 363)	> 300 /> 300
Elastic modulus [N/mm ²] (DIN 53 457)	800 - 1000 N
Formability	High
Long-term stability	Very good UV resistance
Service temperature range [°C]	-200 bis +150
Reaction to fire	Not readily flammable
Light transmittance [%]	> 90
Variations available	Transparent, dyed white, various colours, printing possible

One of the foil materials employed most frequently in the building industry for loadbearing enclosing components is the copolymer ETFE.

Like its chemical relation polytetrafluoroethylene (PTFE), ETFE exhibits an excellent long-lasting soiling behaviour, is very resistant to environmental influences, is also heat- and weather-resistant and boasts long-term UV stability. ETFE foil hardly absorbs short-wave UV radiation, and so the material neither yellows nor becomes brittle. Its mechanical properties are also advantageous. With all these benefits, it is hardly surprising that ETFE is ideal for membrane and tensile structures and is by far the most popular foil material for such applications. Owing to its very high light transmittance and the high permeability in the UV range so important to plant growth, which at the same time limits bacteria growth, the material is frequently used for building envelopes in zoos, greenhouses and other biotopes, and swimming pools. The properties of transparent, pure ETFE foil remain very constant within the production process. Where very large quantities of foil are required, combining different batches from various manufacturers in the same project presents no problems.

*Cremers, K., Lienhard, G., 2011, Construction Manual for Polymers + Membranes, GmbH & Co. KG, Munich.

