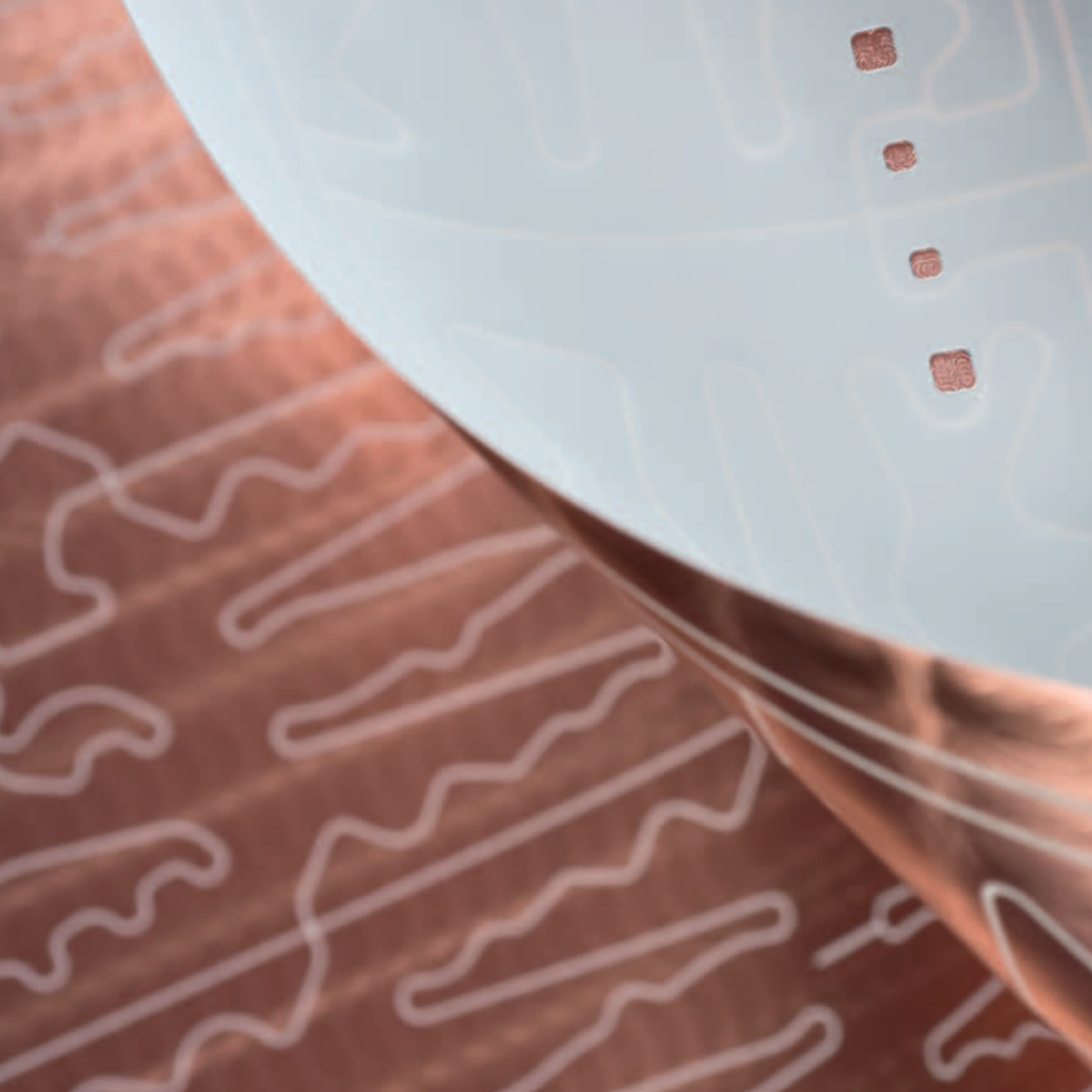
coveme

THE VALUE OF INNOVATION

COVEME **PHOTOVOLTAIC**

Backsheet for PV modules



COVEME
PHOTOVOLTAIC

Backsheet for PV modules

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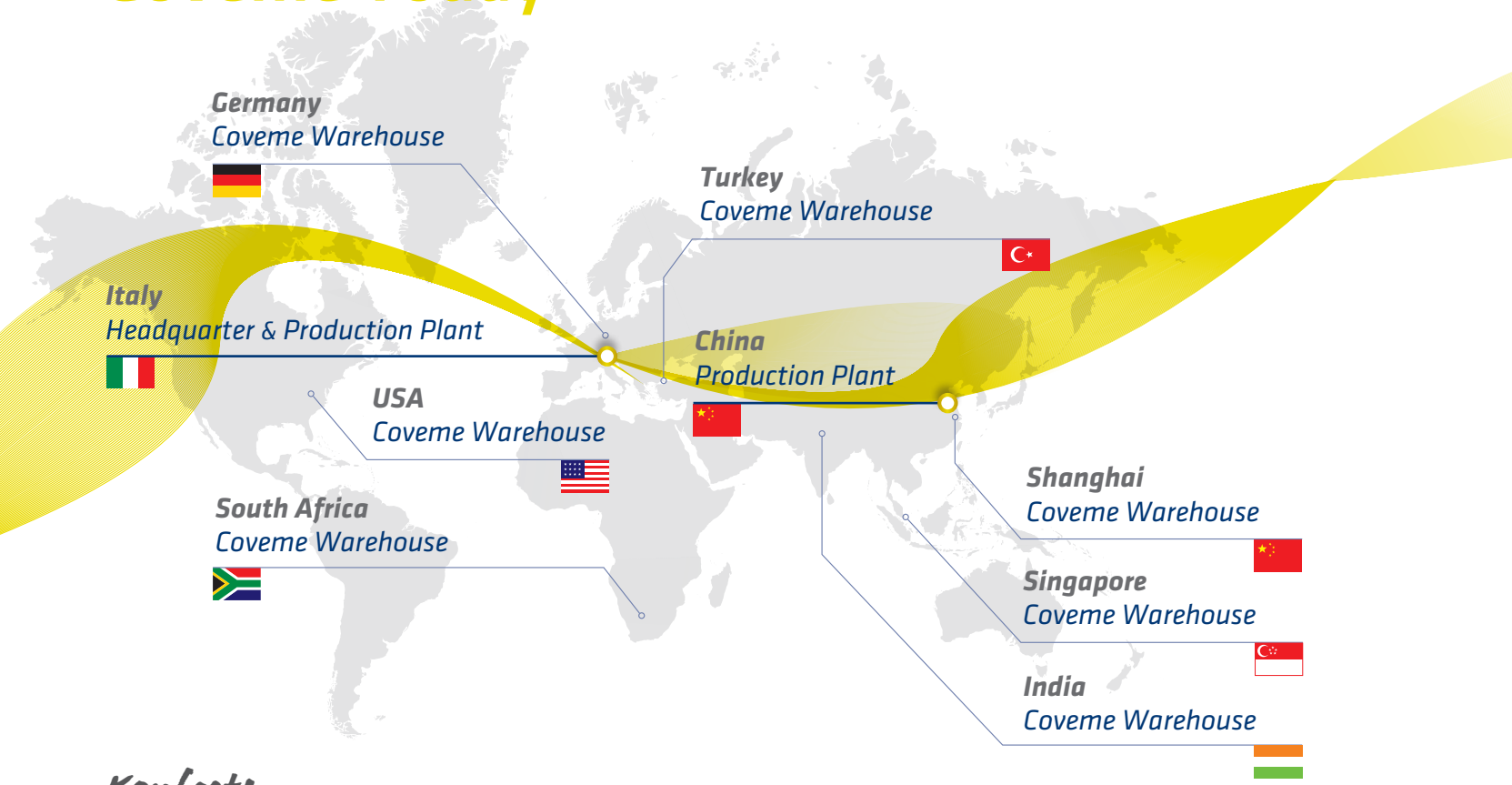
THE VALUE OF INNOVATION

Coveme Today



Keyfacts

2 PRODUCTION PLANTS ITALY AND CHINA	**2** R&D LABS RESOURCES IN ITALY AND CHINA	**30.000** SQM OF PRODUCTION PLANT	**25.000** TONS OF POLYESTER FILM HANDLED EACH YEAR
10 PRODUCTION LINES	**10** COVEME WAREHOUSES AROUND THE WORLD	**64** COUNTRIES CATERED AROUND THE WORLD	**12%** TURN-OVER INVESTED IN TECHNOLOGY AND R&D

Coveme, founded in Bologna, Italy, in 1965, converts polyester film for various industrial applications such as photovoltaic modules, RFID antennas, biomedical sensor strips, electrical insulation, automotive, screen print and flexible packaging. Product and process **innovation** are at the heart of Coveme's activities and fundamentals for the development of new products for highly technological industries of rapid growth and continuous evolution. In this context, the strong **partnerships** with our clients and suppliers are of utmost importance and vital for a successful common growth.Today Coveme has two production sites: the first, built in 1996 in Gorizia, Italy, and the second opened in 2011 in Zhangjiagang, China, around 200km north of Shanghai. They are the result of Coveme's **entrepreneurial mindset**, sagaciousness and know-how gained through the years. Our factory in China, being the first of its kind by a European backsheet manufacturer, is yet another example for this spirit. Coveme's core business is positioned within the renewable energy industry where PV module manufacturers are the main target of our backsheet films. The company has kept pace with the rapid growth of this industry, and has reached a leading position within very few years. Our concern for the **protection of the environment** is reflected not only in what we produce but also how we produce, which means a lean and green production technology and relationship with our partners. Coveme has commercial and logistic networks all over the world. All our sales managers are responsible for their business 100%, that means they are trained to give our clients highly technical support before and after sales.
The **reliability** of Coveme, guaranteed by high quality standards and rigorous control, is the promise we keep to our clients.

GORIZIA

BOLOGNA

ZHANGJIAGANG

Production

Coveme has been converting polyester film for over 20 years and has successfully developed sophisticated technologies in the production of high-tech films for various industries.
The value Coveme adds to the film is vital for its clients who, themselves, work with advanced production processes.
In the two production sites, Gorizia (Italy) and Zhangjiagang (China) 10 production lines are installed and set up for the following converting processes: lamination, surface treatment, heat stabilization, coating and slitting. Both production sites enable a widespread coverage: Italy serves the European and American markets, China serves the Asian market.
Thanks to its own slitting department Coveme can provide all materials in customized rolls, sheets and punched formats. Coveme's manufacturing processes are completely focused on high quality for high performance. For us, this means strict and consistent adherence to measurable and verifiable standards to achieve uniformity of output that satisfies specific customer requirements.

Coveme is
UNI EN ISO 9001-2008
Certified

Research & Development

Our Research and Development laboratory has always been one of the most advanced and strong points of the company, where our technological and operative know how is at complete disposal of the clients' needs, with the aim to find for each of them the very best solution possible.
Highly motivated teams of young technicians - in Italy and in China- generate and sustain a technical/ productive crossfertilization within the company while collaboration between clients and the production department and between the technical department and suppliers permits the exploitation of experience in order to realize innovative products.
In the field of photovoltaics our clients are the world leading manufacturers of PV modules and Coveme is renown for its understanding of business as a partnership with the client based on a common quest for constant innovation.

Sustainability

Green production

In its two production sites Coveme works by adopting measures to protect the environment:

- EMISSION TREATMENT
- STORAGE OF CHEMICALS
- WASTE DISPOSAL
- PEST CONTROL PROCEDURE
- OPTIMIZATION OF ENERGY RESOURCES
- ROHS AND REACH COMPLIANCE

Coveme is
UNI EN ISO 9001:2008, ISO 14001:2004,
OHSAS 18001:2007 certified

Carbon footprint

- ENERGY SAVING
  Coveme has invested in balancing its Carbon footprint through 258kW of solar panels installed on the roof of Coveme's headquarters and plant.
- PET 100% RECYCLABLE
  Hazard-free polyester based backsheets are 100% recyclable.
- TRANSPORT EFFICIENCY
  Thanks to its 2 delocated plants Coveme delivers to different countries reducing environmental pollution.
- WHITE CERTIFICATES
  In the year 2013/2014 Coveme gained 1618 TEE (Energy Efficiency Securities or white certificates), achieving a target of energy saving.
- PV BACKSHEET WASTE MANAGEMENT
  All the wasted PET from Coveme backsheet processing is recycled by specialized companies that can re-use this material for making other consumables, like textile fibres and non-woven fibres. All the by-products generated by Coveme production process (like VOC from adhesive solvents) are burned to generate heat that finally is used for other facilities of Coveme's production plant in Zhangjiagang (China).
- GLOBAL WARMING POTENTIAL
  For its backsheets production Coveme uses polymers which have an intrinsic carbon footprint up to seven times less than other products on the market.

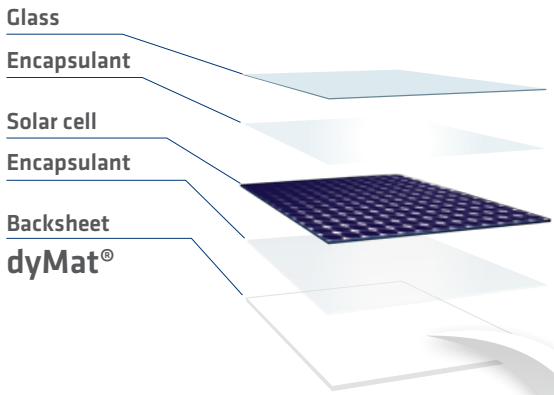
Photovoltaic division

Coveme has been manufacturing protective films, called backsheets, for PV modules for over 20 years.
The first backsheet was produced by Coveme in 1998 in its Italian facilty in Gorizia.
The backsheet was Tedlar® based and launched into the market under the brand dyMat®.
Research and innovation, in partnership with clients and suppliers, have always been at the heart of this business unit to meet the needs of the fast developing PV market.
In fact, in 2008 dyMat PYE® range was launched, a ground breaking new backsheet, entirely polyester based, with a quality-price ratio that exceeded any other product on the market.
The most recent development of Coveme's research is a new highly innovative laminate that features a flexible electronic circuit printed according to the customer's pattern and functions as a conductive element between the cells. This new range of backcontact backsheet, called EBfoil® improves the photovoltaic panel's quality by reducing the loss of electrical conductivity and reducing the cell to module (CTM) efficiency loss.
Today Coveme is the global leader in the manufacturing and development backsheets. The company has two high-tech manufacturing plants, one in Italy and one in China, to bring its know-how and quality close to its clients, especially in Asia. Coveme's backsheets stand for certified performance and durability, and the dyMat® range is today the most sold backsheet worldwide.

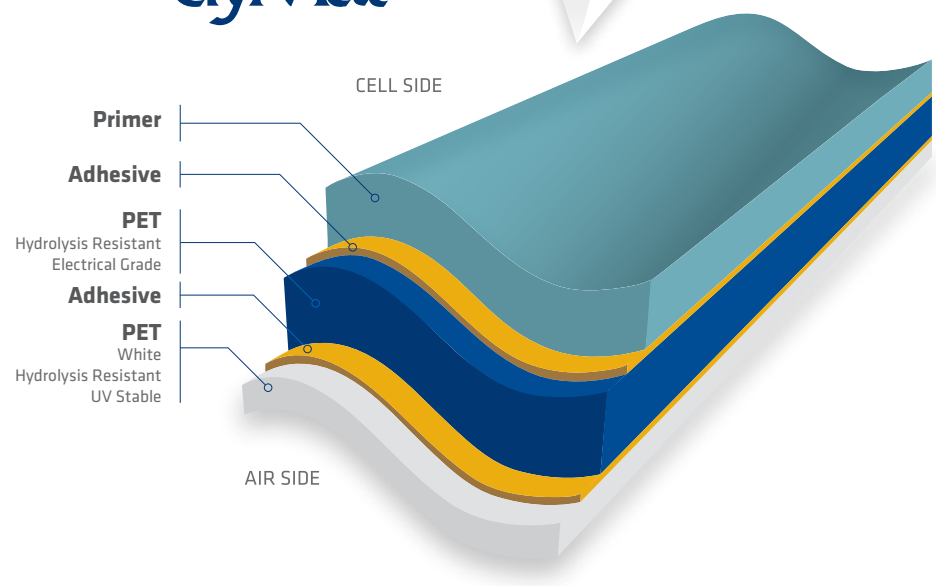
dyMat® backsheets

dyMat® is a range of high performance backsheets that guarantees a quality lifetime of the photovoltaic module. It protects the solar cells from humidity, harsh physical and chemical environments, and guarantees total electrical insulation.
Coveme produces both polyester based (PYE range) and fluoropolymer (T range) backsheets.
dyMat PYE® backsheets are made of two layers of high grade PET laminated with special adhesives.
Both components are specifically developed for superior hydrolysis and UV resistance.
The laminate is finished off with a primer for enhanced adhesion to encapsulants such as EVA.
There are different versions of dyMat PYE® backsheets available depending on the final use and required performance: dyMat ClrPYE® for example, a totally transparent backsheet, is employed in BIPV applications, such as green houses.
Another significant example is the dyMat® PYE3000, the right backsheet for solar panels exposed to extreme conditions, since it exceeds 3000 hours of DHT (Damp Heat Test).
The dyMat® Tedlar® based range features two products. dyMat® T - Ts is a laminate made of two layers of Tedlar® and one inner layer of high grade Pet, whereas dyMat® TL - TsL is a laminate made of one layer Tedlar® and one layer high grade PET.
Both products are specifically developed for superior weatherability. The laminates feature a special treatment for enhanced adhesion to encapsulants and to the junction box.
Thanks to the high quality of Coveme backsheets, the competitive price and the long standing partnership with Dupont for Tedlar® and Dupont Teijin Films® for the development of special PET films, dyMat® is the top performing backsheet range available on the market today.

PV module structure



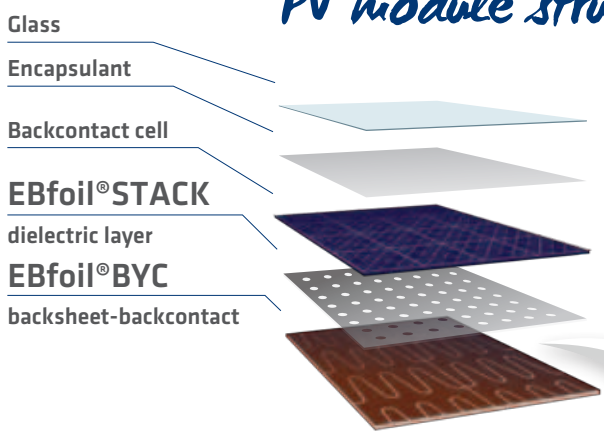
dyMat®

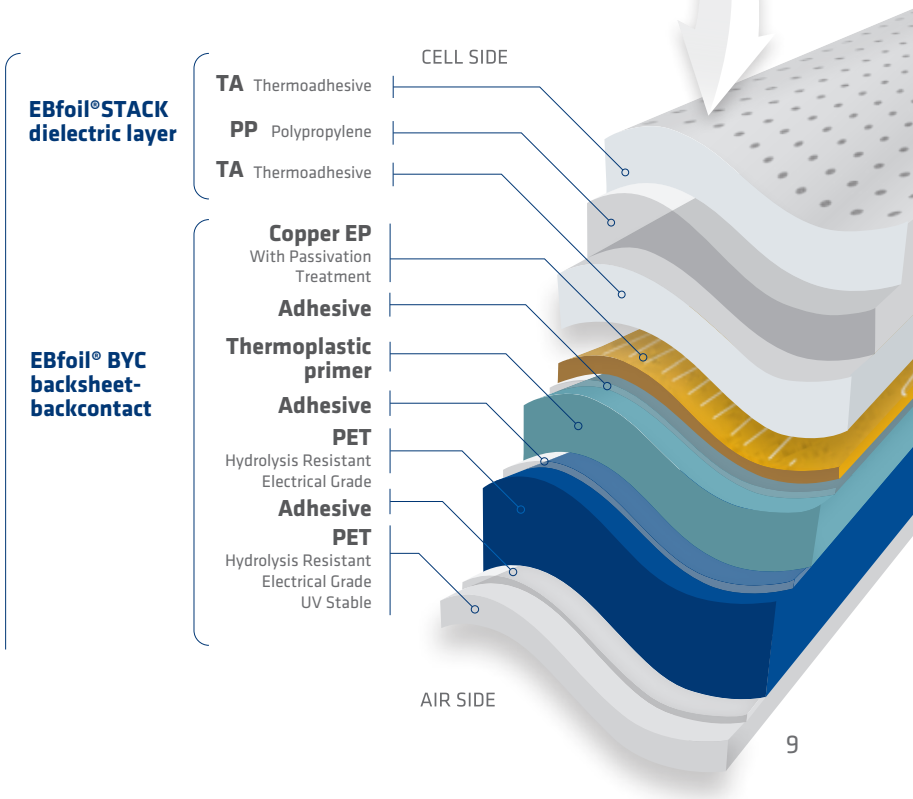


EBfoil® backcontact backsheets

Backcontact backsheet is a winning solution and, integrated with the latest generation of photovoltaic backcontact cells (MWT, EWT and IBC), represents the beginning of a new technological era in the photovoltaics industry. This technology significantly reduces production costs through high-efficiency cells and land innovative module production process.
The automation of the production process reduces near to zero the loss due to broken cells, and guarantees a higher output of the panel.
EBfoil BYC® is a highly innovative material for the manufacturing of backcontact photovoltaic modules. It provides rear protection and electrical interconnection at the same time and allows a very simple, reliable and fast process for Module Assembly.
EBfoil STACK® solves all alignment, precision and repeatability issues of rear punched EVA layer positioning and avoids the expensive deposition of ILD (dielectric layer), since both layers are already embedded.
The two layers, EBfoil BYC® and EBfoil STACK®, together build the component EBfoil BYS®.
Consequently, EBfoil BYS® simplifies the equipment dedicated to the Module Assembly Process with real convenience for the Customer and safe ROI.
EBfoil® is key for the success of the technology of gen II backcontact modules.

Backcontact PV module structure





EBfoil®BYS

dyMat® range:

for every solar module the right type of backsheet

dyMat PYE SPV®-SPV L®

STRUCTURE
PET/PET/PRIMER

TOTAL LAMINATE THICKNESS (µ)
295 - 305

CHARACTERISTIC
▶ BEST PRICE-QUALITY RATIO

dyMat PYE 3000®-3000 L®

STRUCTURE
PET/PET/PRIMER

TOTAL LAMINATE THICKNESS (µ)
295

CHARACTERISTIC
▶ RESIST OVER 3000 H DHT

dyMat Bk PYE®

STRUCTURE
PET/PET/PRIMER

TOTAL LAMINATE THICKNESS (µ)
295

CHARACTERISTIC
▶ BLACK ON AIR AND CELL SIDE

dyMat ClrPYE®

STRUCTURE
COATING/PET/PET/PRIMER

TOTAL LAMINATE THICKNESS (µ)
302

CHARACTERISTIC
▶ TOTALLY TRANSPARENT

dyMat APYE®

STRUCTURE
PET/ALUMINIUM/PET/PRIMER

TOTAL LAMINATE THICKNESS (µ)
370

CHARACTERISTIC
▶ EXTRA MOISTURE BARRIER
HEAT DISSIPATION

dyMat H2D PYE®

STRUCTURE
PET/PET/PRIMER

TOTAL LAMINATE THICKNESS (µ)
595

CHARACTERISTIC
▶ HIGH VOLTAGE INSULATION
>1500 VDC

dyMat TL® - TsL®

STRUCTURE
TEDLAR®/PET/PRIMER

TOTAL LAMINATE THICKNESS (µ)
355-345

CHARACTERISTIC
▶ TEDLAR® BASED BACKSHEET

dyMat T® - Ts®

STRUCTURE
TEDLAR®/PET/TEDLAR®

TOTAL LAMINATE THICKNESS (µ)
350-324

CHARACTERISTIC
▶ BACKSHEET WITH TWO
TEDLAR® LAYERS

dyMat® backsheets are available in 3 colors W=white BK=black BL= blue except for BkPYER (totally black) and ClPYER (totally transparent) and dyMat T®(totally white).
Other colors are available on request.

EBfoil® range:

a winning technology for back contact modules

EBfoil BYC®

STRUCTURE
PET/PET/PRIMER/COPPER

TOTAL LAMINATE THICKNESS (µ)
415

CHARACTERISTIC
- COPPER CONDUCTIVE LAYER

EBfoil STACK®

STRUCTURE
TA/PP/TA

TOTAL LAMINATE THICKNESS (µ)
200

CHARACTERISTIC
- DIELECTRIC AND ENCAPSULANT

EBfoil BYS®

STRUCTURE
EBFOIL STACK+EBFOIL BYC

TOTAL LAMINATE THICKNESS (µ)
615

CHARACTERISTIC
- BACKSHEET-BACKCONTACT ASSEMBLY

dyMat® accessories:

dyMat EPE®

STRUCTURE
PRIMER/PET/PRIMER

TOTAL LAMINATE THICKNESS (µ)
350

CHARACTERISTIC
- ELECTRICAL INSULATOR FOR RIBBONS AND BUS BARS

dyMat E®

STRUCTURE
PRIMER

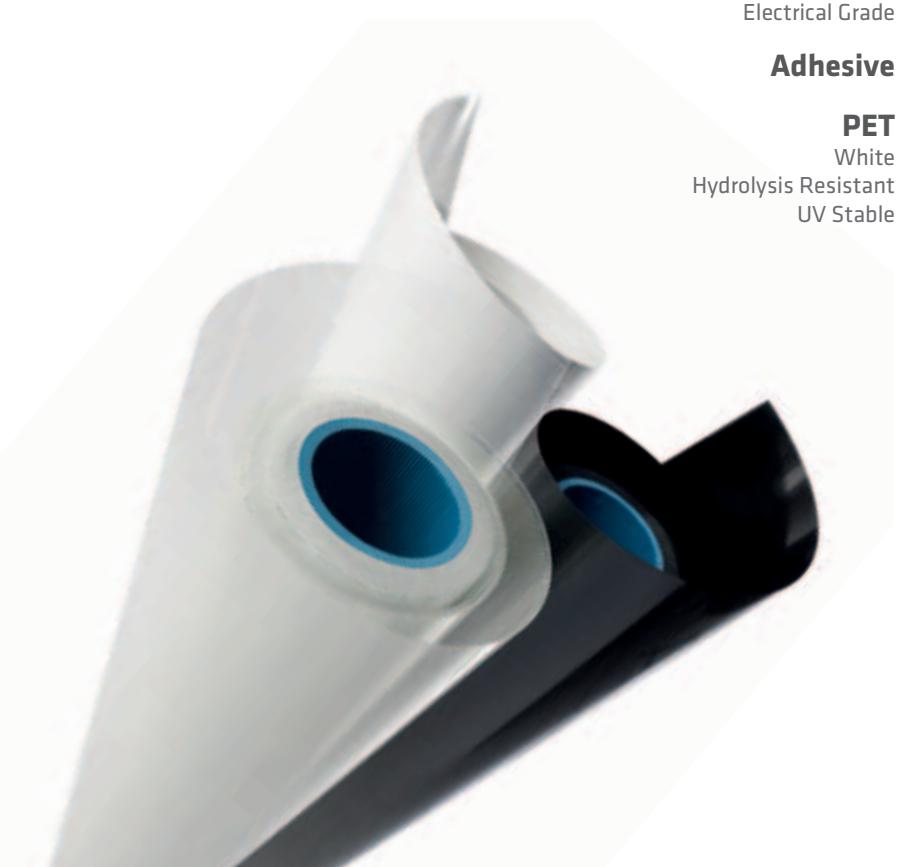
TOTAL LAMINATE THICKNESS (µ)
100

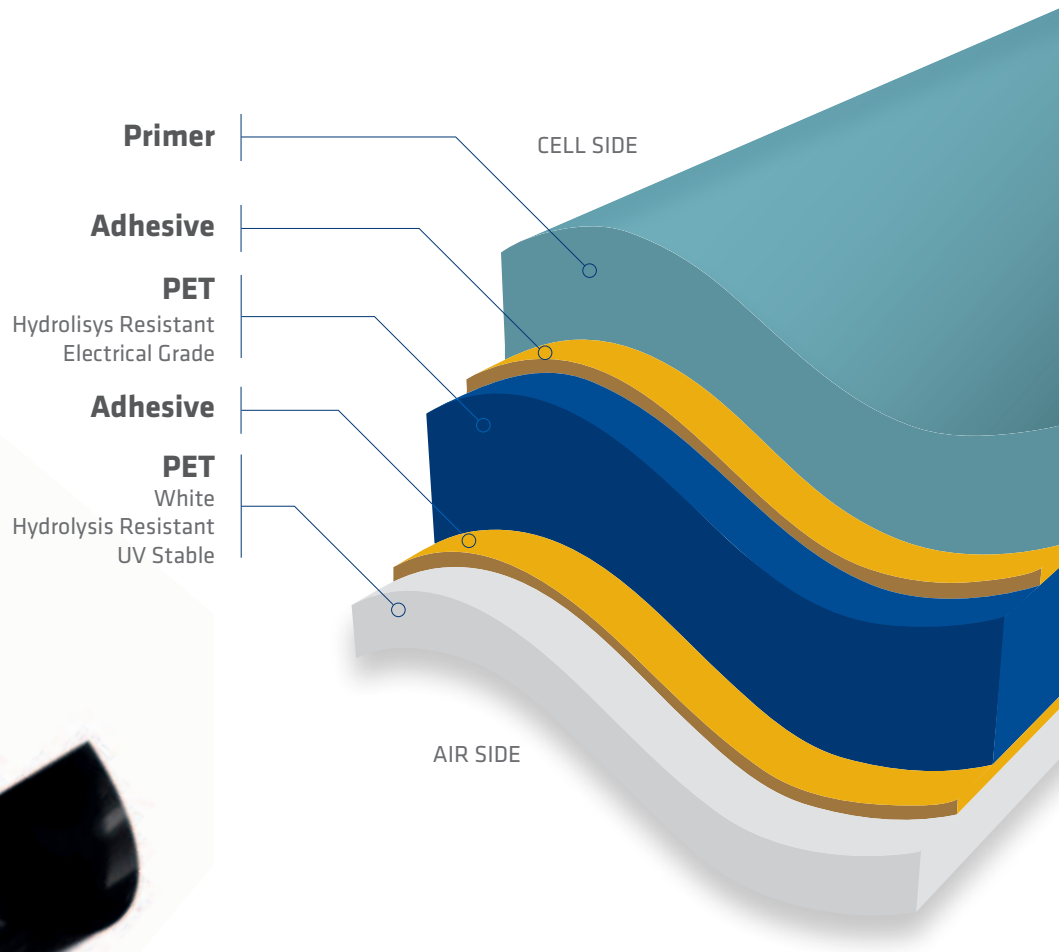
CHARACTERISTIC
- ADHESIVE EVA TAPE

DyMat EPE® is available in white, black or transparent
DyMat E® is transparent.

dyMat PYE SPV® - SPV L®

Best price-quality ratio





Product benefits

- *Two layers of high grade PET and special adhesives particularly resistant to hydrolysis and UV*
- *Enhanced adhesion with encapsulants thanks to a special primer*
- *Over 2500 h of Damp Heat Test (DHT)*
- *Over 72 h of Pressure Cooker Test (PCT)*
- *Over 200 kwh/m2 of UV irradiation resistance*
- *High Reflectivity version to increase PV power output*
- *Snail trails free*
- *Extra low shrinkage version available*
- *305µ version for UL type 1*

dyMat PYE SPV® - SPV L® offers outstanding technical characteristics and performance at a very competitive price. Thanks to its excellent resistance to the atmospheric agents, its strong barrier to oxygen and humidity, the high voltage insulation and the long term resistance to the hydrolysis of adhesives, **dyMat PYE SPV® - SPV L®** is properly indicated for the insulation and protection of the solar cell module. The cell side is treated with a special thick primer which provides extremely high bonding to encapsulants. This primer can be supplied in different colours and in transparent finishing. The laminate thickness has been designed to provide the best combination of properties in terms of electrical insulation and weatherability.

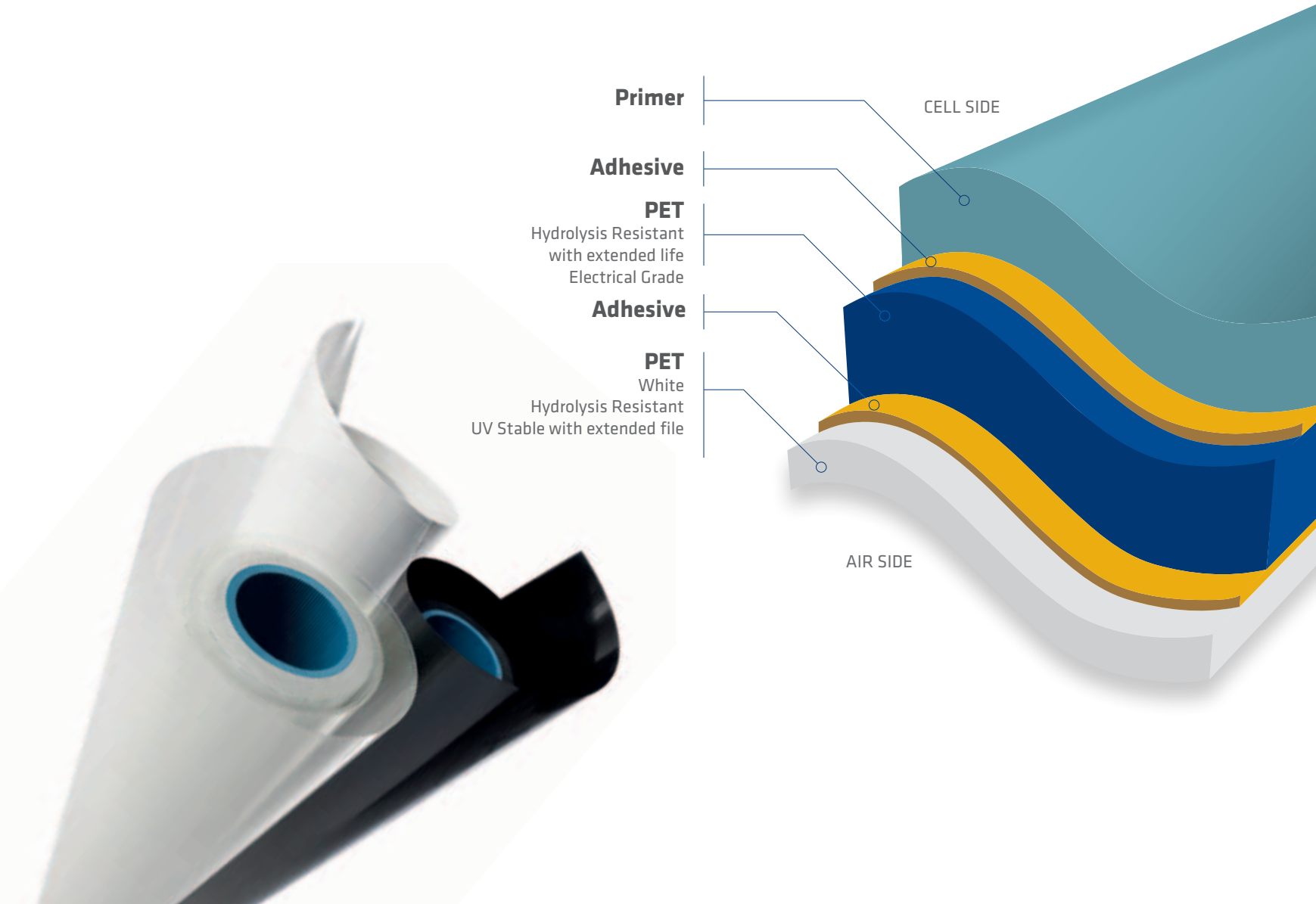
Coverme is UNI EN ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 certified

dyMat PYE SPV®-SPV L® is TÜV certified and UL recognized and JET certified (UL file n° E313506)

The polyester film employed in the manufacturing of dyMat PYE SPV®-SPV L® is completely recyclable. dyMat PYE SPV®-SPV L® is a Coverme registered trademark.

dyMat PYE 3000® - 3000 L®

Resists over 3000 h DHT



Product benefits

- *High grade PET resists over 3.000h DHT and guarantees for outstanding vapour barrier and electrical insulation*
- *Enhanced adhesion with encapsulants thanks to a special primer available in different colours*
- *High reflectance and therefore higher cell output thanks to glossy white finish*

This innovative backsheet has been developed for applications where a superior performance under extreme aging conditions is required.
dyMat PYE 3000® - 3000 L® resists over 3000 hours of Damp Heat Test (DHT). Thanks to its excellent resistance to the atmospheric agents, its strong barrier to oxygen and humidity, the high voltage insulation and the long term resistance to the hydrolysis of adhesives, **dyMat PYE 3000® - 3000 L®** is properly indicated for solar cell module encapsulation.
The cell side is treated with a special thick primer which provides extremely high bonding to encapsulants.
This primer can be supplied in different colours and in transparent finishing.

Coverme is UNI EN ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 certified

dyMat PYE 3000®-3000 L® is TÜV certified and UL recognized and JET certified (UL file n° E313506)

The polyester film employed in the manufacturing of dyMat PYE 3000®-3000 L® is completely recyclable.
dyMat PYE 3000®-3000 L® is a Coverme registered trademark.

dyMat BkPYE®

Black on air and cell side

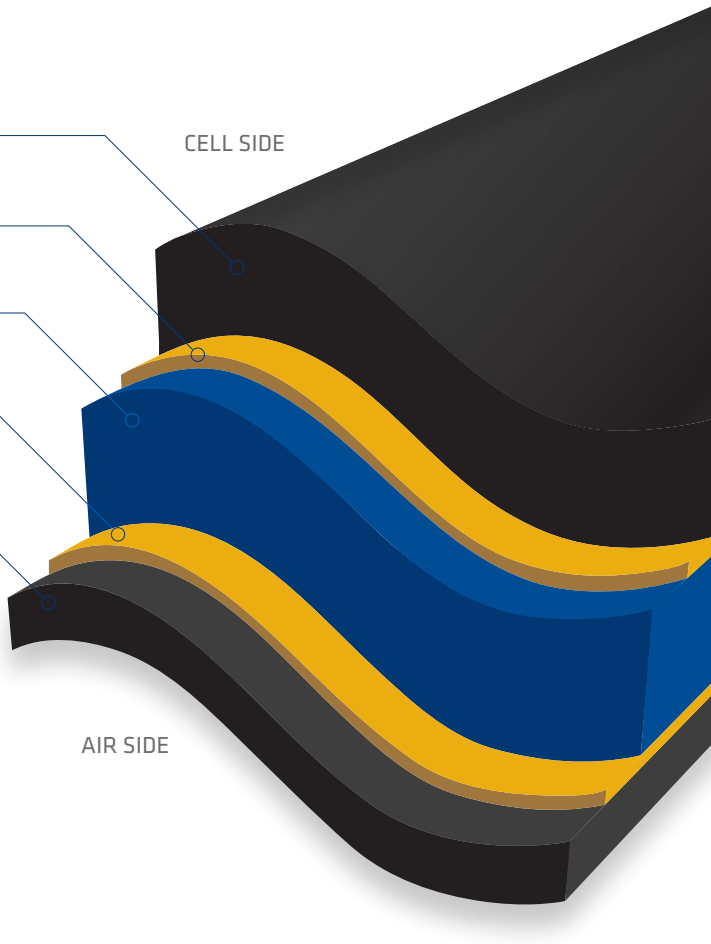
BLACK Primer

Adhesive

PET
Hydrolysis Resistant
Electrical Grade

Adhesive

PET
Black
Hydrolysis Resistant
UV Stable



Product benefits

- ✔ *Black colour on both air side and cell side*
- ✔ *Two layers of high grade PET and special adhesives particularly resistant to hydrolysis and UV*
- ✔ *Enhanced adhesion with encapsulants thanks to a special black primer*
- ✔ *Over 2500 h of Damp Heat Test (DHT)*
- ✔ *Over 72 h of Pressure Cooker Test (PCT)*
- ✔ *Over 200 kwh/m2 of UV irradiation resistance*
- ✔ *Snail trails free*
- ✔ *Extra low shrinkage version available*

Thanks to the innovative black PET outer layer **dyMat BkPYE®** guarantees superior hydrolysis resistance and outstanding UV stability.
Both air side and cell side are of black colour, specifically suited and designed for roof-top and BIPV applications.
The long term resistance of the laminate is garanted by specific adhesives at improved hydrolysis resistance.
The cell side is treated with a special thick primer which provides extremely high bonding to encapsulants.
The laminate thickness has been designed to provide the best combination of properties in terms of electrical insulation and weatherability.

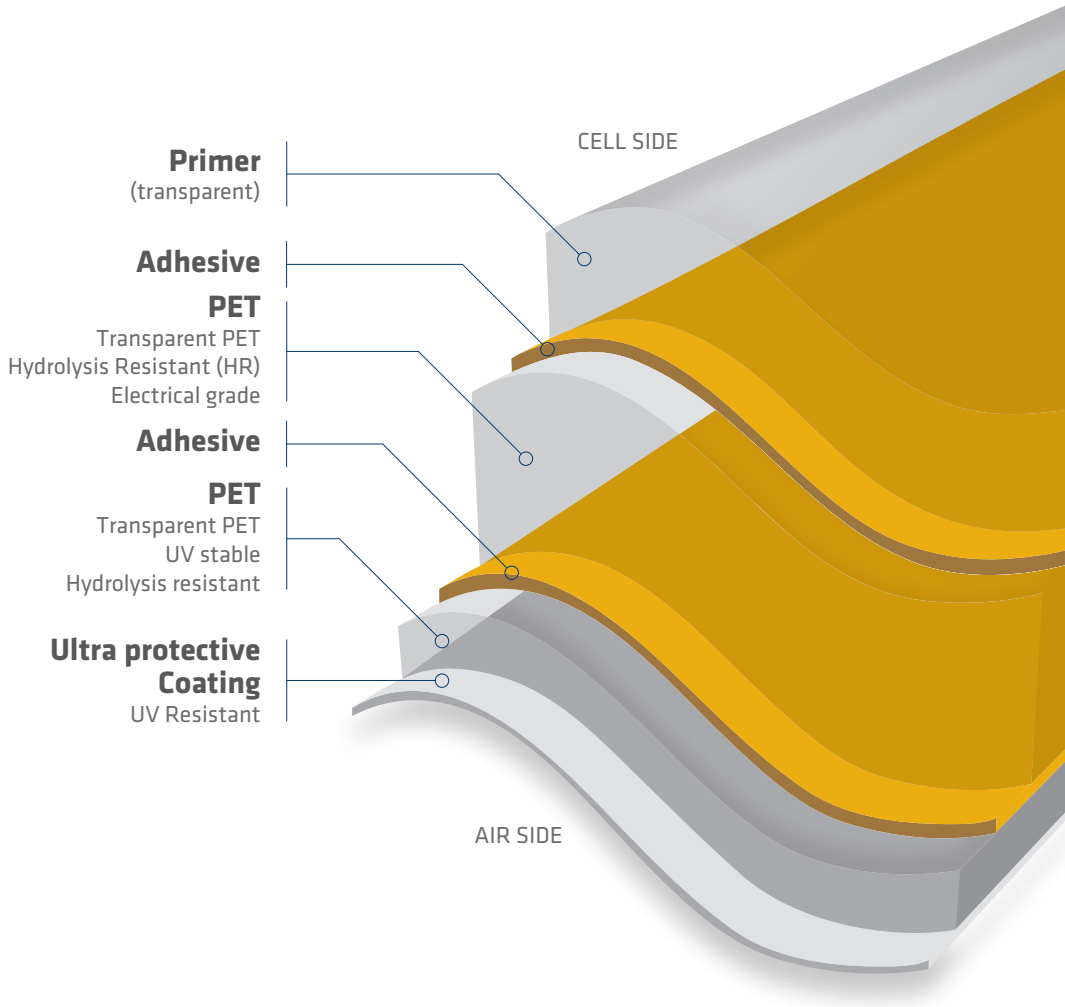
Coverme is UNI EN ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 certified

dyMat BkPYE® is TÜV certified and UL recognized and JET certified (UL file n° E313506)

The polyester film employed in the manufacturing of dyMat BkPYE® is completely recyclable.
dyMat BkPYE® is a Coverme registered trademark.

dyMat ClrPYE®

Totally transparent



Product benefits

- *Special protective coating for ultra UV resistance*
- *Two layers of high grade PET and special adhesives particularly resistant to hydrolysis and UV*
- *Enhanced adhesion with encapsulants thanks to a special primer*
- *Over 2500 h of Damp Heat Test (DHT)*
- *Over 72 h of Pressure Cooker Test (PCT)*
- *Over 200 kwh/m2 of UV irradiation resistance*
- *Snail trails free*
- *Highly transparent even under extreme UV and humidity conditions*

Completely transparent laminate based on two layers of high performance polyester film. Particularly indicated for BIPV (Building Integrated Photovoltaics) such as greenhouses, parking areas and for bifacial solar cells.
Thanks to its excellent resistance to the atmospheric agents, its strong barrier to oxygen and humidity, the high voltage insulation and the long term resistance to the hydrolysis of adhesives, **dyMat ClrPYE®** is properly indicated for solar cell module encapsulation.
The cell side is treated with a special thick primer which provides extremely high bonding to encapsulants.
Primer and Pet are in transparent finishing.

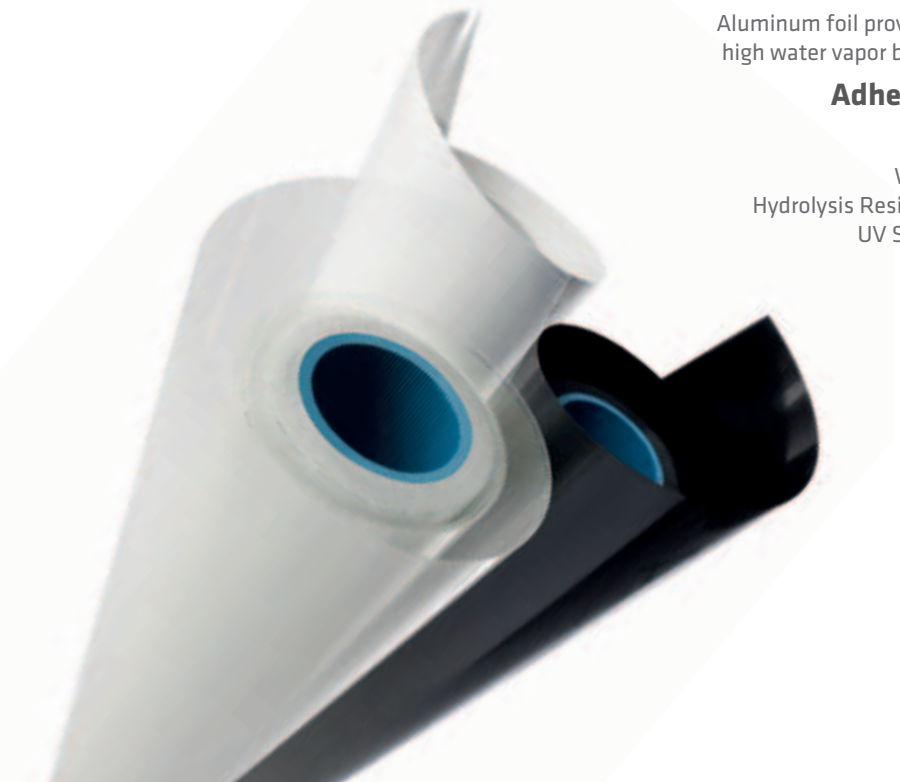
Coveme is UNI EN ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 certified

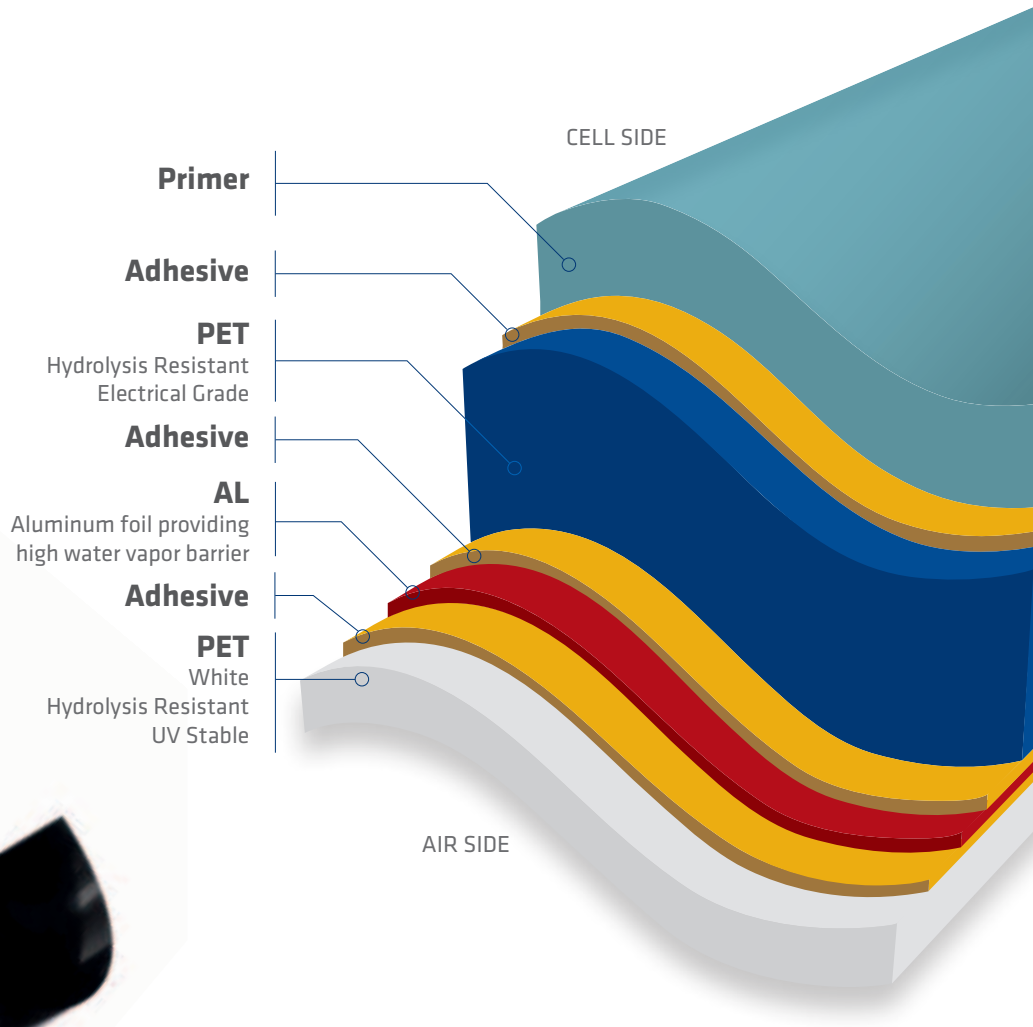
dyMat ClrPYE® is TÜV certified and UL recognized and JET certified (UL file n° E313506)

The polyester film employed in the manufacturing of dyMat ClrPYE® is completely recyclable.
dyMat ClrPYE® is a Coveme registered trademark.

dyMat APYE®

Extra moisture barrier





Product benefits

- *Aluminum layer guarantees high vapour barrier, the PET layer the electrical insulation*
- *Enhanced adhesion with encapsulants thanks to a special primer available in different colours*
- *Over 2500 h of Damp Heat Test (DHT)*
- *Over 72 h of Pressure Cooker Test (PCT)*
- *Over 200 kwh/m2 of UV irradiation resistance*
- *High Reflectivity version to increase PV power output*
- *Snail trails free*
- *Tailored Al layer thickness to increase the heat dissipation and lower the PV panel temperature*

Thanks to the excellent resistance to atmospheric agents of high grade PET, the outstanding barrier provided by Aluminium and the high voltage insulation of the laminate structure, **dyMat APYE®** is properly indicated for the back protection of solar modules in highly aggressive environments, or as back protection for solar systems with high efficiency solar cells like HIT or for the roof dissipation of solar module in high temperature enviroments (like desert). The cell side is treated with a special thick primer which provides extremely high bonding to encapsulants. This primer can be supplied in different colours and in transparent finishing.
The long term resistance of the laminate is granted by specific adhesives at improved hydrolysis resistance.

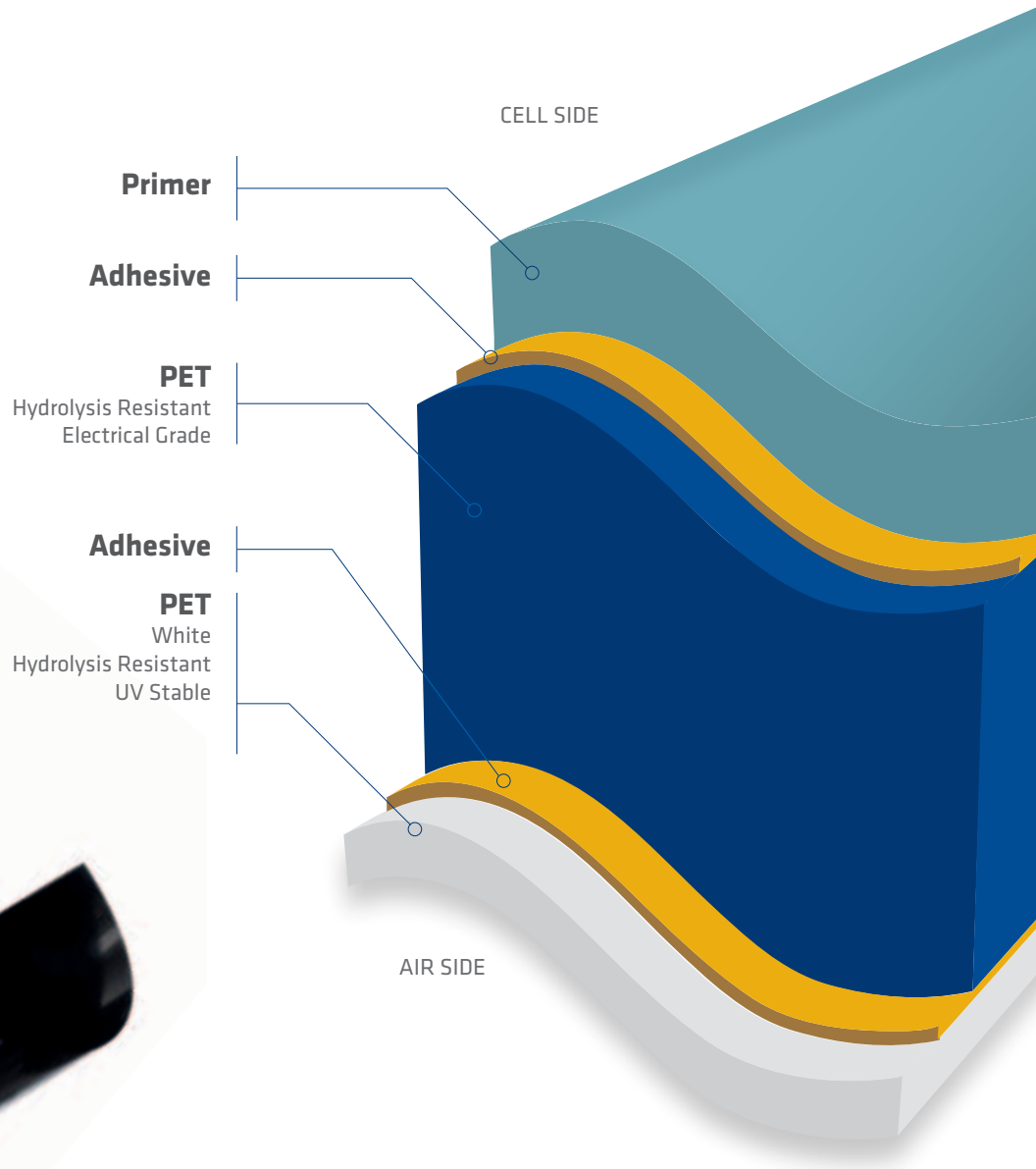
Coverme is UNI EN ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 certified

dyMat APYE® is TÜV certified and UL recognized and JET certified (UL file n° E313506)

The polyester film employed in the manufacturing of dyMat APYE® is completely recyclable.
dyMat APYE® is a Coverme registered trademark.

dyMat H2D PYE®

Super extra thick



Product benefits

- *Extra thick layers guarantee high voltage insulation and outstanding vapour barrier*
- *Two layers of high grade PET and special adhesives particularly resistant to hydrolysis and UV*
- *Enhanced adhesion with encapsulants thanks to a special primer*
- *Over 2500 h of Damp Heat Test (DHT)*
- *High reflectance and therefore higher cell output*
- *Snail trails free*
- *Partial discharge test (PDT) > 1500 VDC*

Thanks to the UV resistance and high grade PET outer layer increased thickness, combined with the high grade PET inner layer of elevated thickness (350µ) **dyMat H2D PYE®** guarantees superior moisture barrier and high voltage insulation. The long term resistance of the laminate is granted by specific adhesives at improved hydrolysis resistance.
The cell side is treated with a special primer of elevated thickness which provides extremely high bonding to encapsulants. This primer can be supplied in different colours. The laminate thickness has been designed to provide the best combination of properties in terms of electrical insulation and weatherability.

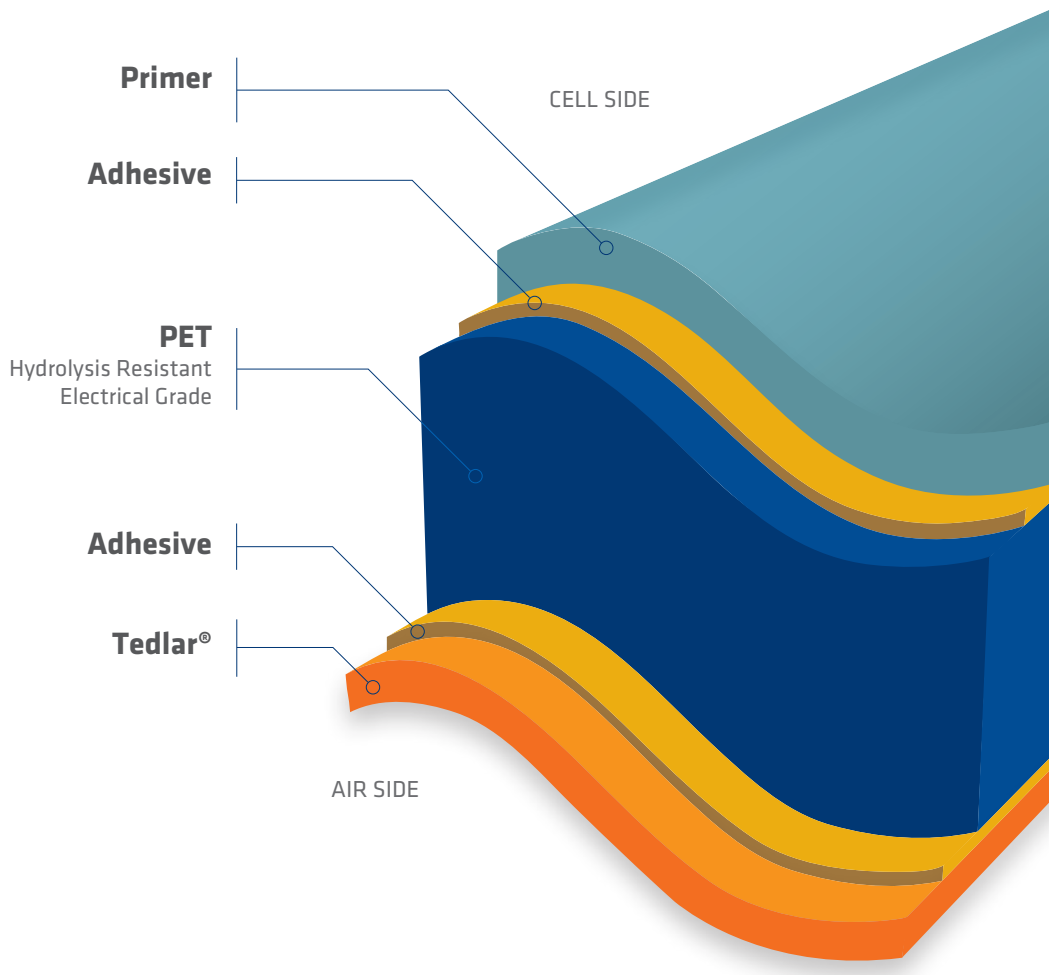
Coveme is UNI EN ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 certified

dyMat H2D PYE® is TÜV certified and UL recognized and JET certified (UL file n° E313506)

The polyester film employed in the manufacturing of dyMat H2D PYE® is completely recyclable.
dyMat H2D PYE® is a Coveme registered trademark.

dyMat® TL - TsL

Tedlar® based backsheet



Product benefits

- *UV and hydrolysis resistant*
- *Strong adhesion to encapsulant thanks to a special primer available in various colours*
- *Over 2000 h of Damp Heat Test (DHT)*
- *Snail trails free*
- *Extra low shrinkage version available*

Thanks to its excellent resistance to the atmospheric agents, its strong barrier to oxygen and humidity, the high voltage insulation and the long term resistance to the hydrolysis of adhesives, **dyMat® TL - TsL** is properly indicated for the insulation and protection of the solar cell module.Tedlar® film is available in 38µ thickness (dyMat® TL) and 25µ thickness (dyMat® TsL).
Also the inner PET layer is available in several thickness: 125/190/250µ; primer is available in thickness: 50/100µ.
The thickness of the laminate is designed to guarantee the best combination in terms of electrical insulation and weathering resistance.

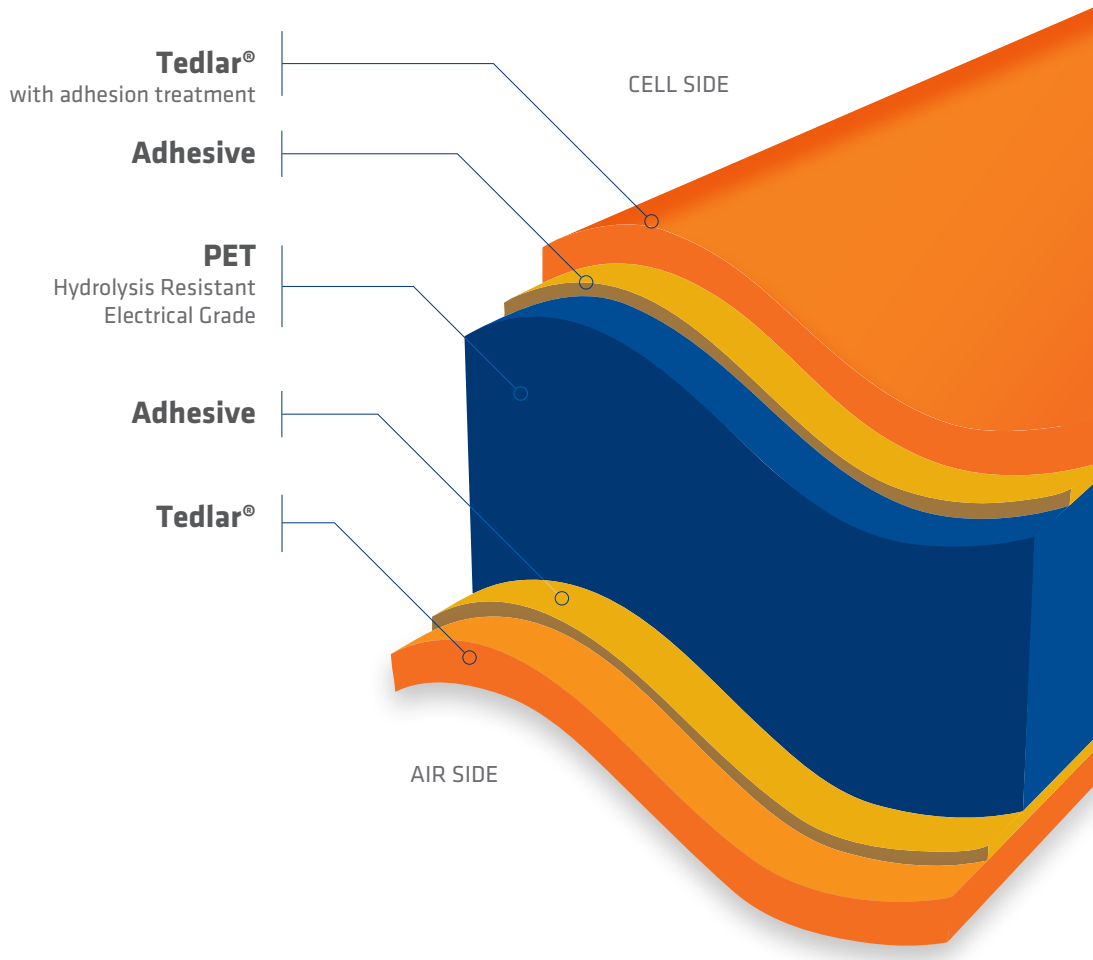
Coveme is UNI EN ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 certified

dyMat® TL-TsL is TÜV certified and UL recognized

The polyester film employed in the manufacturing of dyMat® TL-TsL is a Coveme registered trademark. Tedlar® is a DuPont registered trademark.

dyMat® T-Ts

Backsheet with two Tedlar® layers



Product benefits

- *Tedlar® with special surface treatment*
- *UV and hydrolysis resistant*
- *Strong adhesion to encapuslant thanks to a special Tedlar® surface treatment*
- *Over 2000 h of Damp Heat Test (DHT)*
- *Snail trails free*
- *Extra low shrinkage version available*

Thanks to its excellent resistance to the atmospheric agents, its strong barrier to oxygen and humidity, the high voltage insulation and the long term resistance to the hydrolysis of adhesives, **dyMat® T - Ts** is properly indicated for the insulation and protection of the solar cell module.
The Tedlar® has a special surface treatment which guarantees an enhanced adhesion with the encapsulant, superior to conventional Tedlar® based laminates available in the market. **dyMat® T** and **Ts** is particularly suited for high UV enviroment like desert. Tedlar® film is available in 38µ thickness (dyMat® T) and 25µ thickness (dyMat® Ts).

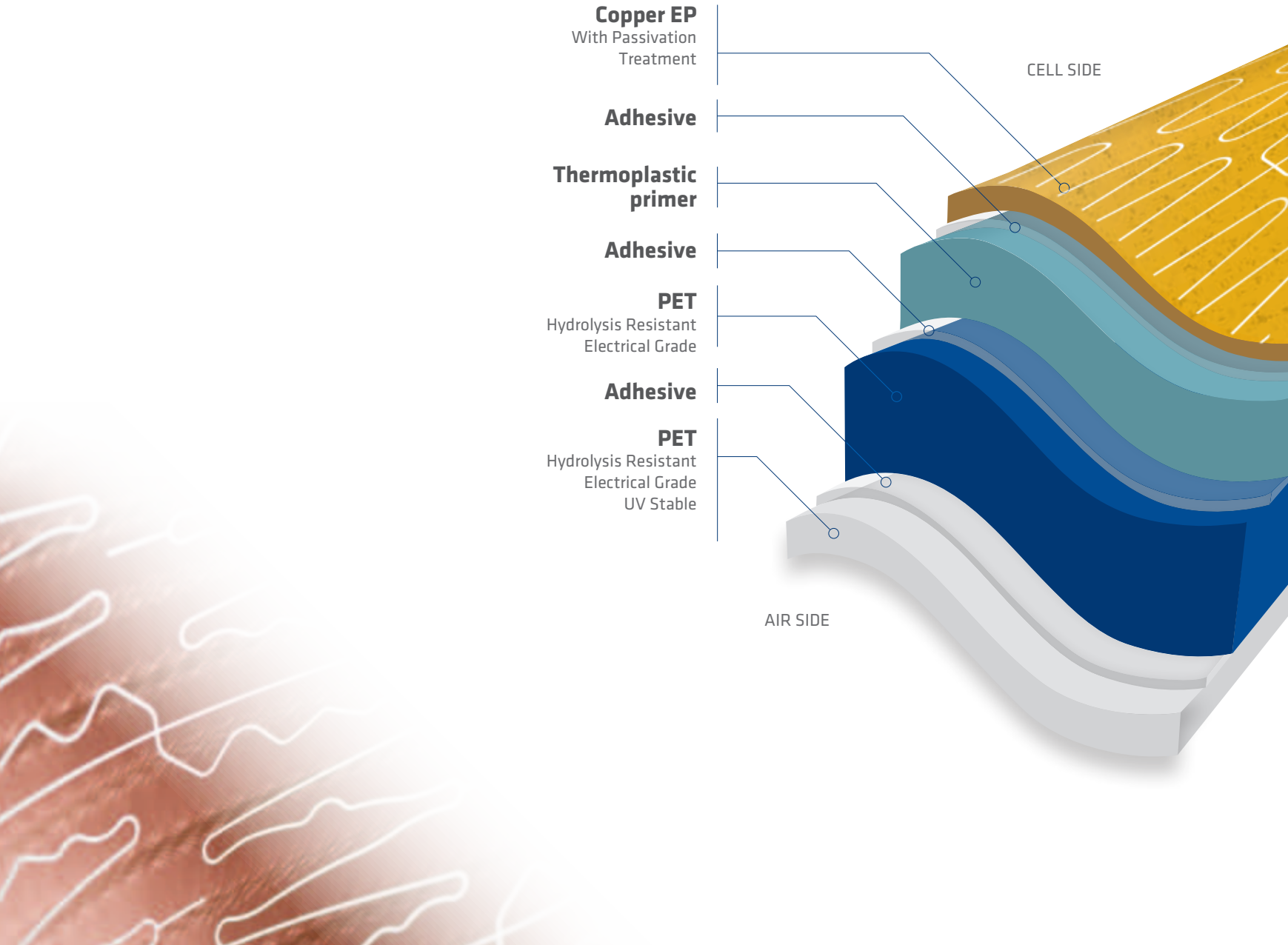
Coverme is UNI EN ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 certified

dyMat® T-Ts is TÜV certified and UL recognized

The polyester film employed in the manufacturing of dyMat® T-Ts is a Coverme registered trademark. Tedlar® is a DuPont registered trademark.

EBfoil BYC®

Copper conductive layer



Product benefits

- *Cold and dry manufacturing processing avoids warping and guarantees maintenance of layflat properties*
- *Tailor made circuit patterning to minimize electrical circuit losses*

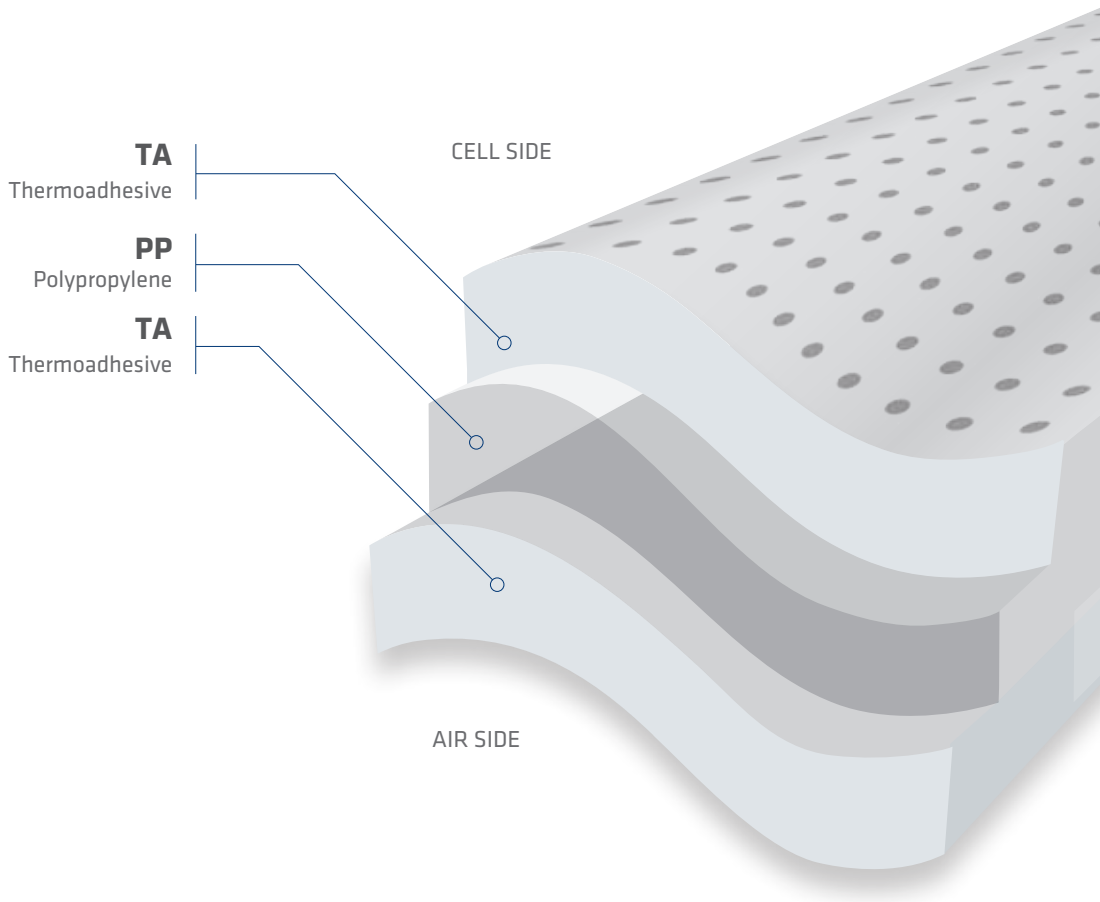
Especially designed for backcontact cells **EBfoil BYC®** is a multilayer laminate of high perfomance Polyester layers, a primer layer and an electroplated copper conductive layer. The circuit patterning can be custom made according to request.The substrate is based on the already proven dyMat PYE® structure with guaranteed UV and hydrolysis resistance. The adhesive system , made with copolyester at high molecular weight resins cross linked with aliphatic disocyanate is fully tested and proven. The copper conductive layer is passivation treated for enhanced bonding to the closer layer, and ensures high solderability with conductive pastes or adhesives.
The structure of **EBfoil BYC®** is designed to ensure strong bonding to the encapsulant to all exposed surfaces.
Manufacturing process has been specifically designed in sheets, dry enviroment and at low temperatures to guarantee superior planarity and dimensional stability of **EBfoil BYC®**.

Coveme is UNI EN ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 certified

The polyester film employed in the manufacturing of EBfoil BYC® is completely recyclable.
EBfoil BYC® is an EBfoil registered trademark.

EBfoil STACK®

Dielectric and Encapsulant



Product benefits

- ✓ *Position and size of vias custom made*
- ✓ *Surface scribing for easy cell positioning*
- ✓ *No debris retention*

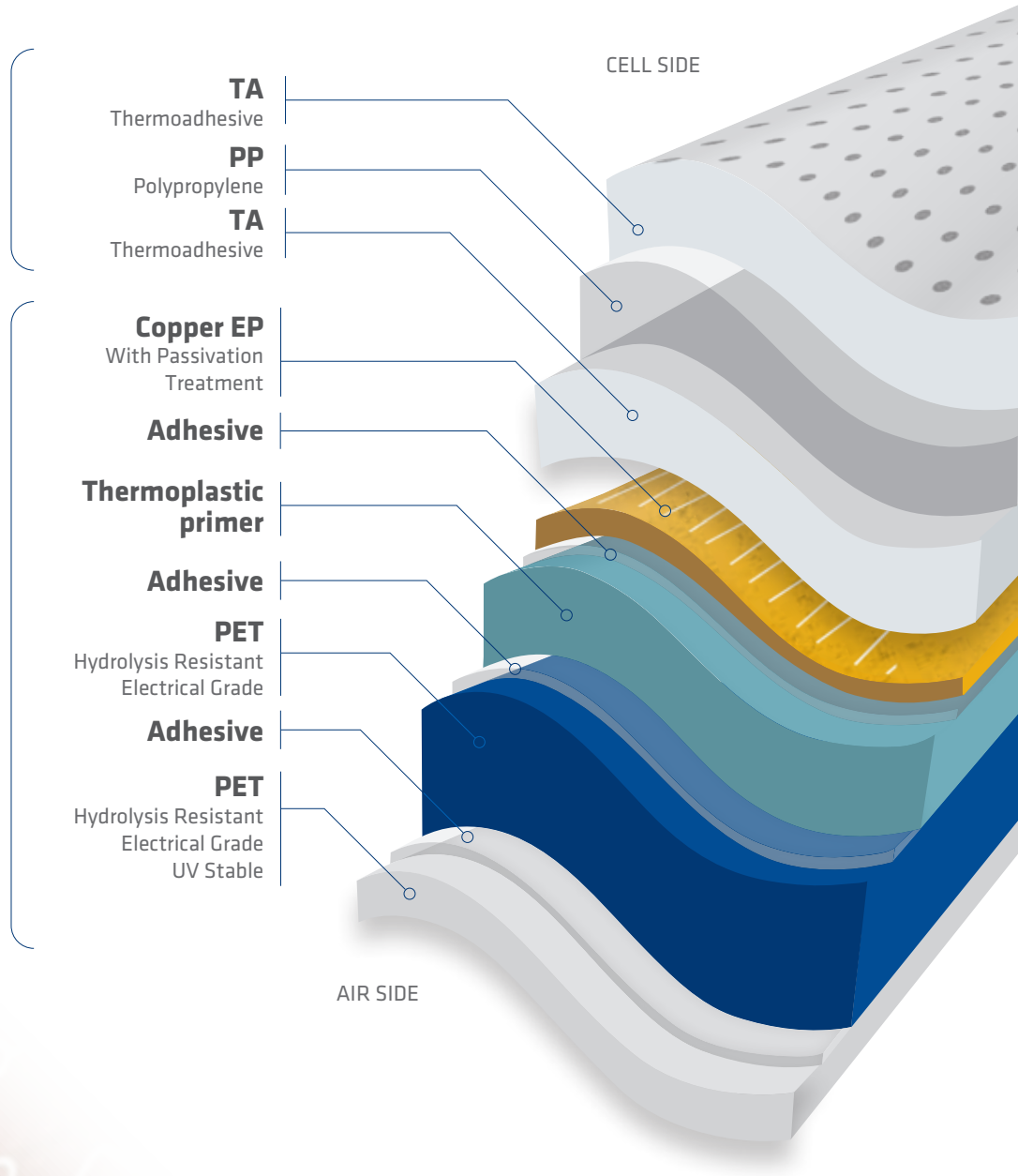
EBfoil STACK®, acting as back encapsulant, is the solution to overcome the use of dielectric layers coated onto the backsheet back-contact structures.
It guarantees a strong and stable bonding to the EBfoil BYC® exposed surfaces and to the back of the cells. Its stable and stiff behaving makes handling easy, that maintains also after lamination a dielectric property thanks to the inner layer.
The vias pattern of **EBfoil STACK®** can easily be customized.
EBfoil STACK® is compatible with varius encapsulants and could be pretagged to avoid cell floating.

EBfoil BYS®

Backsheet-backcontact assembly

EBfoil®STACK dielectric layer

EBfoil® BYC backsheet Back-contact



Product benefits

- *Two components, EBfoil® BYC and EBfoil® STACK are combined together as preassembly*
- *Connection is made pretagging the components one to the other*
- *Doesn't interfere with vacuum evacuation during lamination while is a precursor of the used pretagging to avoid ECA and cells floating*
- *Fiducials could be made on both BYC and STACK, to allow camera alignment for ECA deposition*

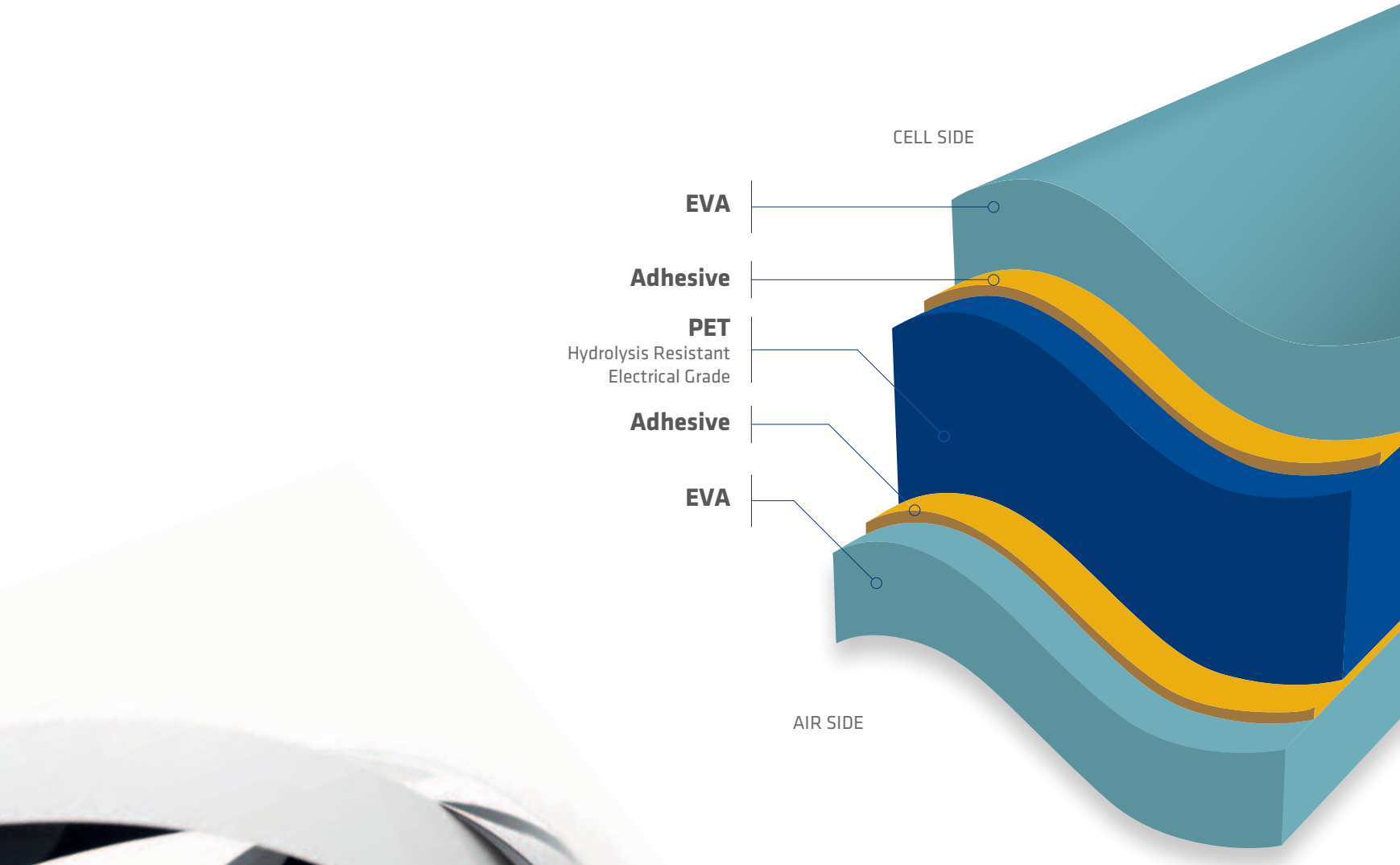
To allow easy module assembly **EBfoil BYS®** consists of the back-contact backsheet EBfoil® BYC preassembled with the suitable dielectric encapsulant EBfoil® STACK. EBfoil® BYC is a multilayer laminate of high perfomance Polyester layers, a primer layer and an electroplated copper conductive layer. The copper conductive layer is passivation treated for enhanced conductivity and adhesion, and ensures corrosion protection and high solderability with conductive pastes or adhesives. EBfoil® STACK is a dielectric encapsulant that guarantees a strong and stable bonding to the substrate not covered by conductors, to the conductive layers itself and to the back of the cells. Its stable and stiff behaving makes handling easy, and maintains a dielectric property also after lamination thanks to the innovative inner layer.
Specifically designed process manufacturing in sheets, dry enviroment and at low temperatures guarantees superior planarity and dimensional stability of **EBfoil® BYS**.

Coveme is UNI EN ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 certified

The polyester film employed in the manufacturing of EBfoil BYS® is completely recyclable.
EBfoil BYS® is an EBfoil registered trademark.

dyMat EPE®

Electrical insulator for ribbons and bus bars



Product benefits

- *Multilayer component made of EVA//PET//EVA*
- *Enhanced adhesion with encapsulan thanks to a special primer*
- *High reflectance*

dyMat EPE® is designed to be used as electrical insulator in between ribbons and bus bars in PV module fabrication. The material has a perfect bonding with both encapsulation EVA and whichever backsheet, thanks to its structure with a double layer of EVA.

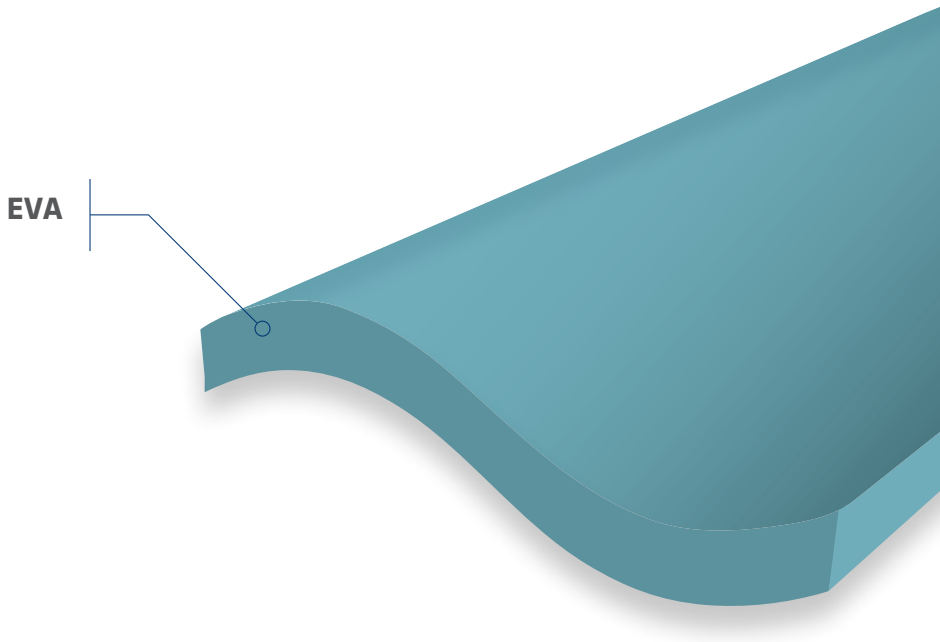
Coveme is UNI EN ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 certified

dyMat EPE® is UL recognized (UL file n° E313506)

The polyester film employed in the manufacturing of dyMat EPE® is completely recyclable.
dyMat EPE® is a Coveme registered trademark.

dyMat E®

Adhesive EVA tape



Product benefits

- *Avana siliconised paper 90 g/m2*
- *Transparent EVA*
- *Modified acrylic emulsion adhesive*

Transparent adhesive tape made of EVA.
It is used to fix components such as cells, ribbons etc. during PV module fabrication.

In the lamination process the substrate melts and becomes totally embedded with encapsulating EVA.

Certifications

dyMat®

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THE VALUE OF INNOVATION

dyMat® backsheets are UL recognized
(UL file n° E313506), JET certified, TÜV certified IEC 60664,
in compliance with IEC 61215 and IEC 61730

Coveme is
UNI EN ISO 9001:2008, ISO 14001:2004,
OHSAS 18001:2007 certified

158 kw of PV modules installation on Gorizia roof

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