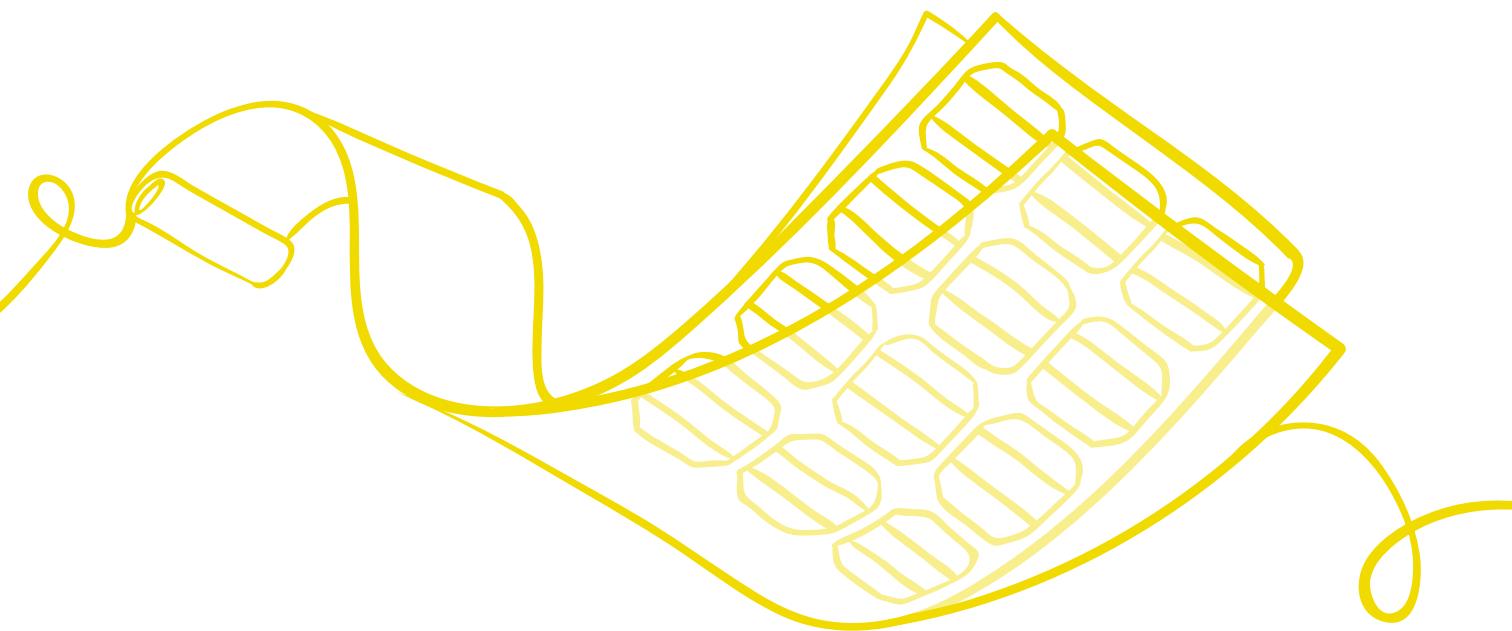


COVEME PHOTOVOLTAIC

*Transparent backsheets and frontsheets
for Bifacial and Flexible Modules*



CLEAR BACKSHEETS AND FRONTSHEETS FOR BIFACIAL AND FLEXIBLE PV

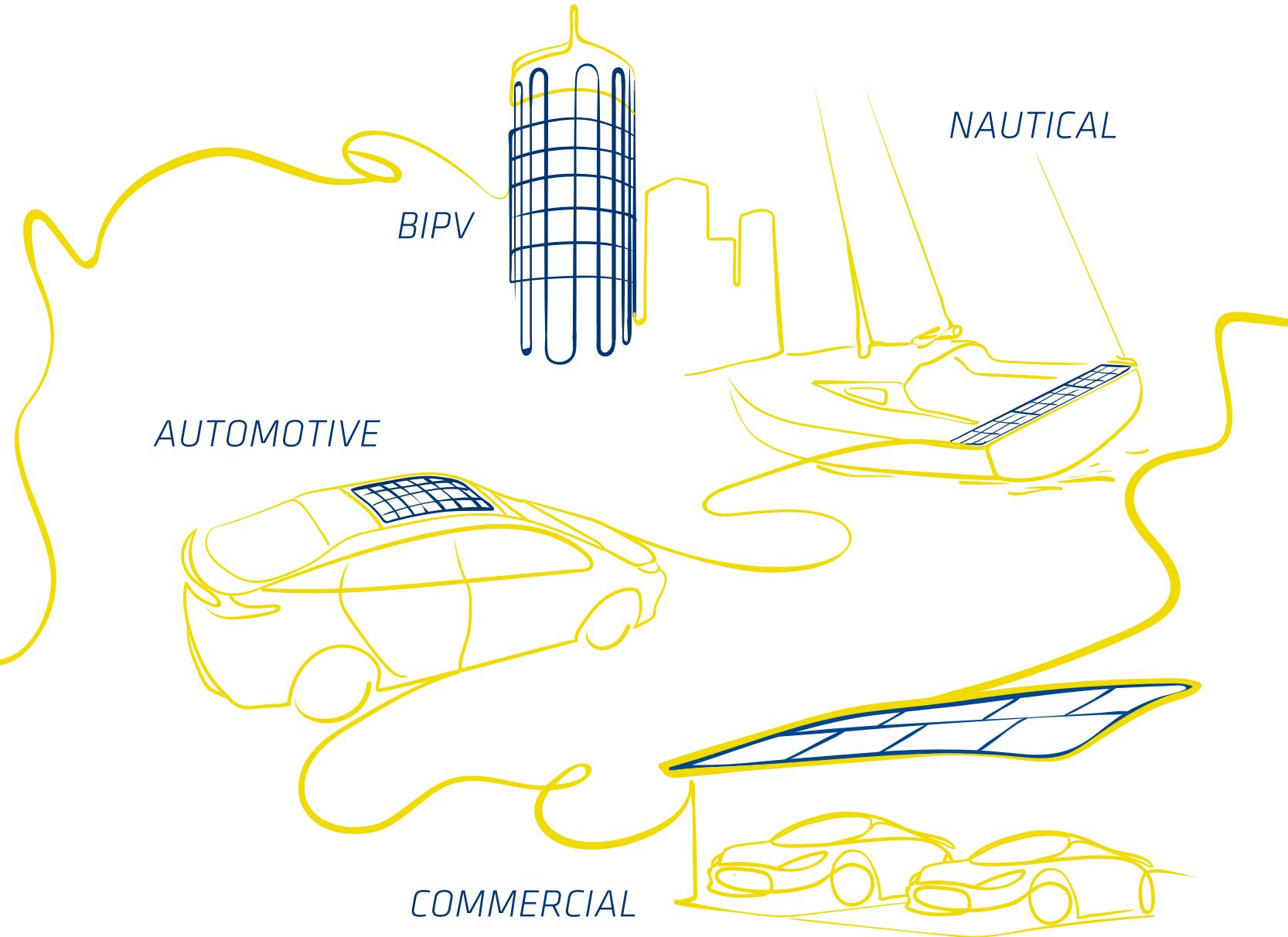
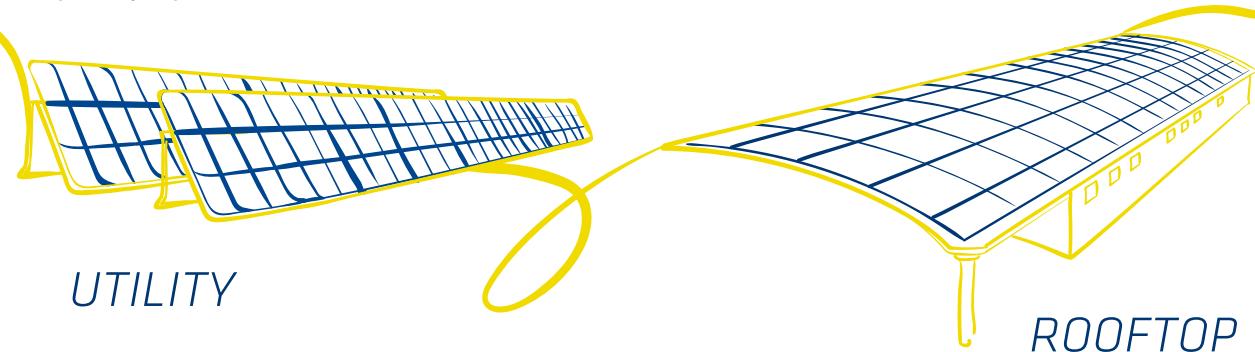
Coveme, headquartered in Italy, is a leading manufacturer of polymer laminates with 20 years supplying the PV industry. Today over 55 GW of solar panels installed worldwide are protected by Coveme's dyMat® backsheets and frontsheets. The privately owned company has two production sites in Italy and China and three fully equipped research centres in Italy, Germany and China. Coveme's 14 production lines are equipped with the latest technologies for coating, laminating, heat stabilizing, treating and customized cutting of polymeric films.

The company's latest product development within the dyMat® range for the photovoltaic market are highly transparent monolayer and multilayer backsheets and frontsheets. They are specifically designed to offer a unique solution for manufacturers of bifacial, HJT and semi-flexible modules, as well as standard and semi-flexible modules, as well as standard and thin film modules.

Thanks to their ultra-high transparency, lightweight and extra low vapour barrier dyMat® transparent backsheets and frontsheets are a valid alternative to glass. They feature an innovative and reliable coating that protects the module from scratches, abrasion, corrosion and UV thus enhancing the module durability and performance over time.

There are 1000 VDC and 1500 VDC versions for final applications in grid and off-grid installations on rooftop and commercial buildings, in utility plants, and special applications like BIPV, nautical and automotive.

Besides a guaranteed and certified product performance Coveme offers a number of green solutions that include recyclable materials as well as backsheets and frontsheets made of recycled polyester film (rPET).



dyMat® Clear OVERVIEW

TRANSPARENT BACKSHEETS AND FRONTSHEETS

Coveve offers high grade Polyester based and Tedlar® based transparent backsheets specifically developed to provide a lightweight alternative to glass on the backside of bifacial modules. The Pet based frontsheets with an innovative UV Coating are a highly performing solutions for semi-flexible and flexible pv modules.

Functions

dyMat® Clear Backsheets and Frontsheets for highly performing modules

-  *Strong UV coating*
-  *Guaranteed durability*
-  *High humidity resistance*
-  *Electrical insulation up to 1500 VDC*
-  *Extra barrier properties*

Green solutions

Ecological product and service proposals for a sustainable industry

-  *Polyester 100% recyclable*
-  *Pet components made of recycled Pet (rPET)*
-  *Pet scrap recycling and converting*

Added values

Innovative coatings and materials make dyMat® Clear products unique in its performance

-  *Specific primer and coatings for extra UV protection*
-  *Strong abrasion and scratch resistance*
-  *Excellent heat dissipation properties*
-  *Lightweight*
-  *Options for increased output*
-  *Extended life time up to 30 years*

Quality

dyMat® products are certified by the world's major certification bodies

-  *TÜV RHEINLAND CERTIFIED*
-  *TÜV SUD CERTIFIED*
-  *UL REGISTERED*



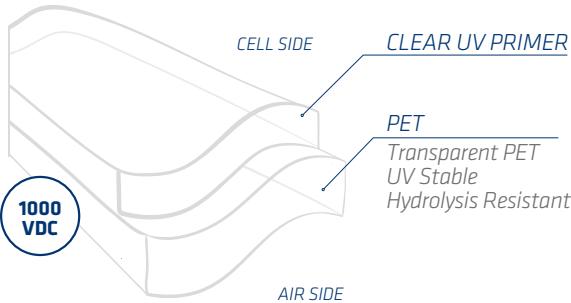
dyMat® CLEAR PET BACKSHEETS

A new generation of transparent high grade polyester backsheets to be employed as an alternative to glass in Bifacial modules with heterojunction cells or in other module types for installations where transparency is required (eg. greenhouses). The polymers, primer and adhesives specifically developed for these products provide an extra high resistance to UV and humidity. dyMat® Clear PET Backsheets are suitable for 1000 and 1500 VDC and have a proven track record being employed in the world's first bifacial 1500V installation.

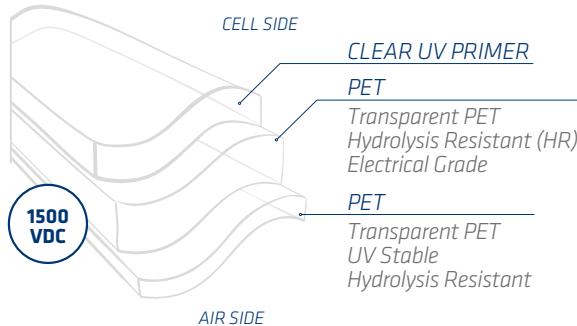
PRIMER TYPES :

- LO: Extra UV protection on cell side
- LD: High humidity barrier
- LDO: High humidity barrier + UV protection

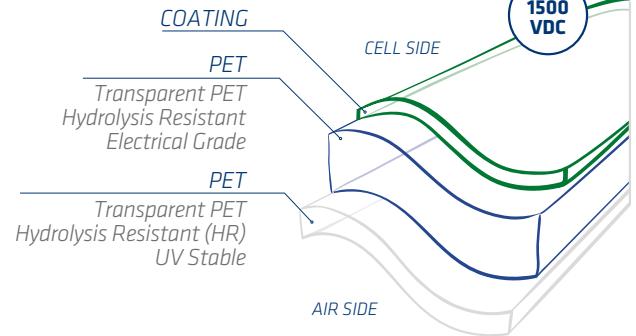
Clr PYE Mono



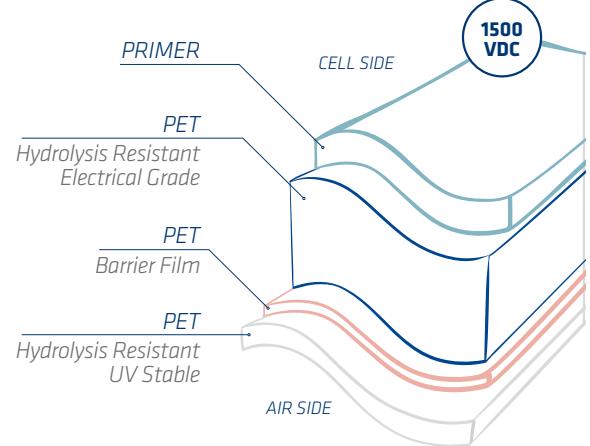
Clr HDPYE



Clr HDPYE F



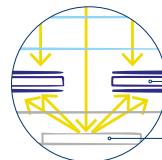
Clr HDPYE SX LDO



OUTPUT INCREASING OPTION:

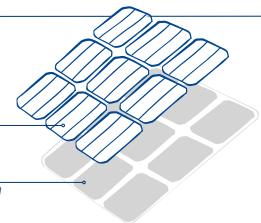
dyMat® Selective:

Optional white grid incorporated in the backsheet that turns the space in between the cells and the borders into a highly reflective area for significant output improvement. The grid layout is defined according to customer's cell shape and size.



PV CELLS

BACKSHEET WITH WHITE GRID



dyMat® CLEAR TEDLAR® BACKSHEETS

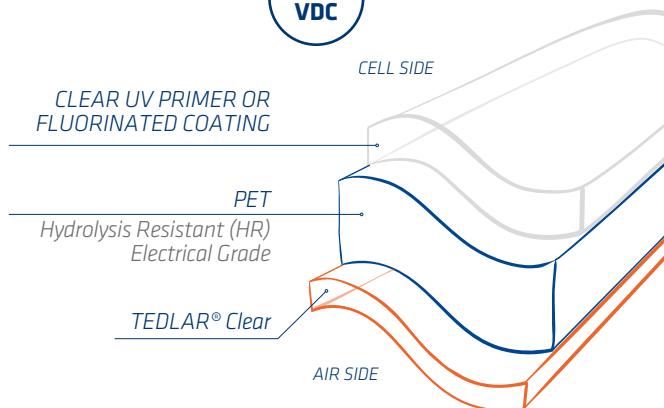
A new generation of transparent Tedlar® backsheets to be employed as an alternative to glass in Bifacial modules or in other module types for installations where transparency is required (eg. greenhouses). The primer and adhesives specifically developed for these products provide an extra high resistance to UV and humidity. Fluorinated coating as alternative to primer on cell side available. dyMat® Clr TsL 50/158 is a double layer product for 1000 VDC, whereas dyMat® Clr TsL 50/285 is a double layer product for 1500 VDC with a thicker inner PET layer in order to comply with the new IEC rules for 1500V insulation.

PRIMER TYPES :

- LO: Extra UV protection on cell side
- LD: High humidity barrier
- LDO: High humidity barrier + UV protection

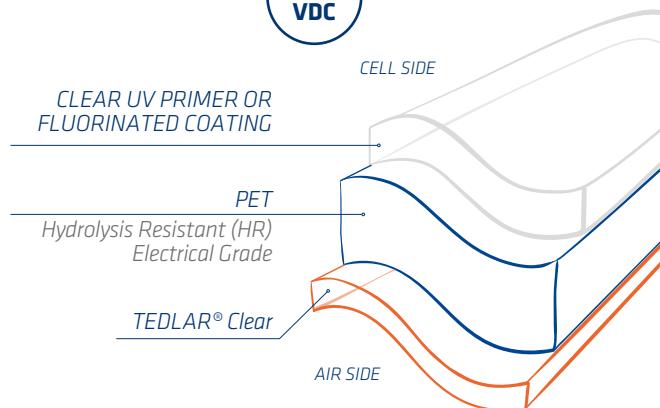
Clr TsL 50/158

1000
VDC



Clr TsL 50/285

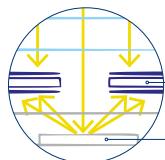
1500
VDC



OUTPUT INCREASING OPTION:

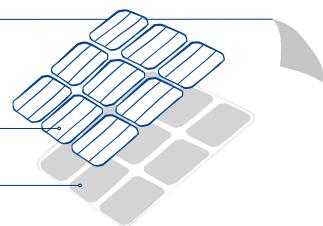
dyMat® Selective:

Optional white grid incorporated in the backsheet that turns the space in between the cells and the borders into a highly reflective area for significant output improvement. The grid layout is defined according to customer's cell shape and size.



PV CELLS

BACKSHEET WITH WHITE GRID



dyMat® CLEAR PET FRONTSHEETS

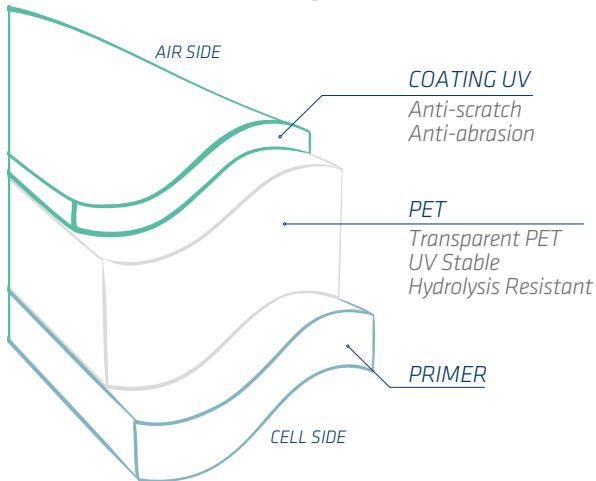
dyMat® transparent frontsheets are the ideal solution to be employed instead of glass in lightweight flexible photovoltaics. They combine the properties of a co-extruded polyester film with those of a special UV coating applied in a high-tech EB curing production process. dyMat® frontsheets have been specifically developed to guarantee an extra high UV and hydrolysis resistance together with outstanding anti-scratch and anti-abrasion properties. dyMat® Clear PET Frontsheets are suitable for 1000 and 1500 VDC and they can be supplied with the UV coating in a matt anti-glare finish for output enhancement.

UV COATING PROPERTIES:

- ✓ UV resistance
- ✓ Anti-Scratch
- ✓ Anti-Abrasion
- ✓ Matt version
- ✓ Glossy version

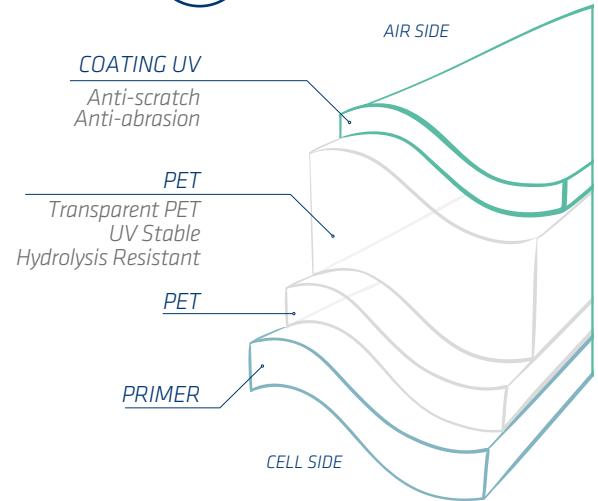
Clr FS PYE MONO

1000
VDC



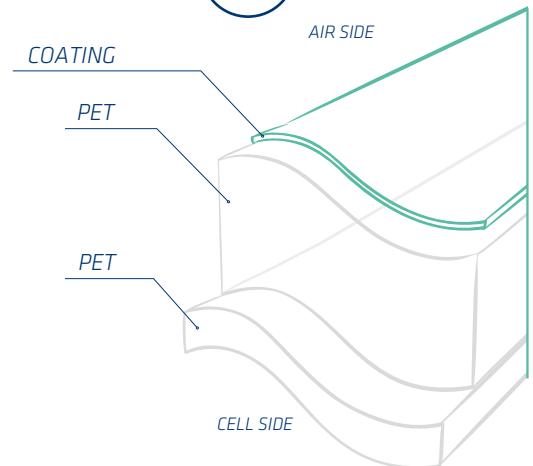
Clr FS HDPYE

1500
VDC



Clr FS HDPYE MONO

1500
VDC



Coveme is certified ISO 9001: 2015 for quality management standards, ISO 14001: 2015 for environmental management and ISO 45001:2018 for occupational health and safety.

**COVEME ITALY
CERTIFICATES**



ISO 9001:2015



ISO 14001:2015



ISO 45001:2018

**COVEME CHINA
CERTIFICATES**



ISO 9001:2015



ISO 14001:2015



ISO 45001:2018

Coveme has received the Silver Medal Ecovadis certification as the result of a corporate sustainability performance evaluation.



Coveme is honoured to be member of the most prestigious associations and bodies in the photovoltaic industry around the globe, believing strongly in the benefit of a continuous cross-fertilization among peers



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