



**Dr. HANS WERNER®
CHEMIKALIEN**

'Solar Encapsulates EVA, POE, EPE Films'

Dr. HANS WERNER CHEMIKALIEN® POE (Polyolefin Elastomers) FILM For Encapsulating Solar PV Panels

PU307 & PT306 GRADES

PRODUCT SPECIFICATION



High Adhesion with Solar Glass



Excellent Transparency



Strong Anti PID Ability



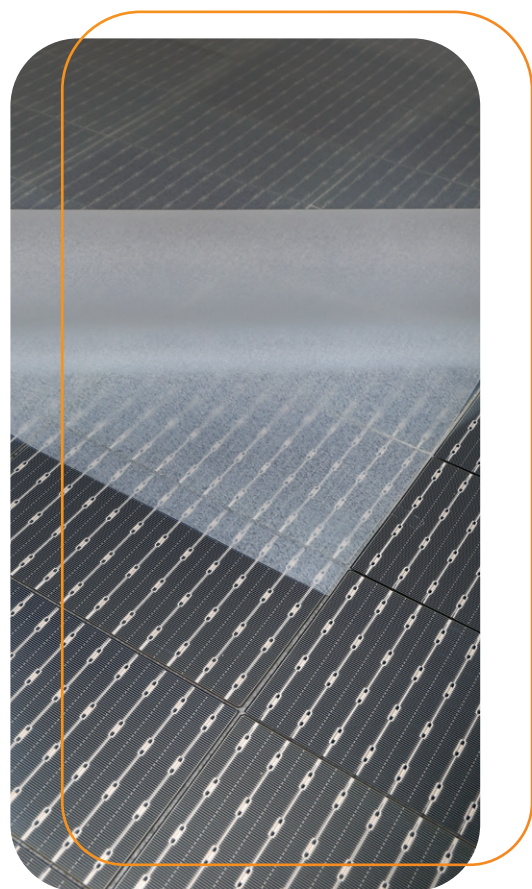
Excellent UV Protection



Low Water Vapor Rate



**Excellent Weatherability and
Long Term Reliability**



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Technical Specification (Dr. HWC-PU307 - PT306 Grades)

Properties	Unit	Test Method	Value	
			PU307	PT306
Total Thickness (Tolerance: $\pm 0.05\%$)	mm	DR. HWC method	0.40 ~ 0.90	
Total Width	mm	Scale	Up to 1300	
Thermal Shrinkage (MD)	%	On solar glass (3 min, 125°C)	≤ 3	≤ 3
Thermal Shrinkage (TD)	%	On solar glass (3 min, 125°C)	≤ 1	≤ 1
Thermal Creep	mm	90°C, 250hrs	≤ 1	≤ 1
Shore Hardness	Shore A	ASTM D 2240	70 $\pm$ 5	70 $\pm$ 5
Melting Point	°C	ASTM D3417	70 $\pm$ 2	70 $\pm$ 2
Degree of Cross-linking (Gel Content)	%	Soxhlet Method Lamination (10 min, 145°C)	≥ 70	≥ 70
Adhesion to Glass (With Backsheet)	N/cm	ASTM D 903	≥ 80	≥ 80
Adhesion to Backsheet	N/cm	ASTM D 903	≥ 80	≥ 80
Ultimate Elongation (Cured)	%	ASTM D 638	≥ 600	≥ 600
Tensile Strength (Cured)	MPa	ASTM D 638	12 $\pm$ 3	12 $\pm$ 3
Optical Transmittance (380nm-1100nm)	%	ASTM E424	≥ 91	≥ 91
UV Cut-off Wave Length	nm	DR. HWC method	340-360	UV transparent
Heat / Humidity Resistance (80°C, 85%RH, 2000hrs)	ΔYI	ASTM E 313	≤ 5	≤ 5
Water Absorption (Cured)	%	ISO 62-200805	≤ 0.1	≤ 0.1
Volume Resistivity (Cured)	$\Omega \cdot \text{cm}$	ASTM D 257	$\geq 1 \cdot 10^{15}$	$\geq 1 \cdot 10^{15}$

Lamination Recipe

Lamination Parameters	Unit	First Chamber	Second Chamber
Temperature	°C	120 - 130	145 - 150
Vaccum Time	min	5 - 7	5 - 7
Lamination Time	min	9 - 14	9 - 14
Pressure	kPa	-70 l -50 l -25	-70 l -50 l -25

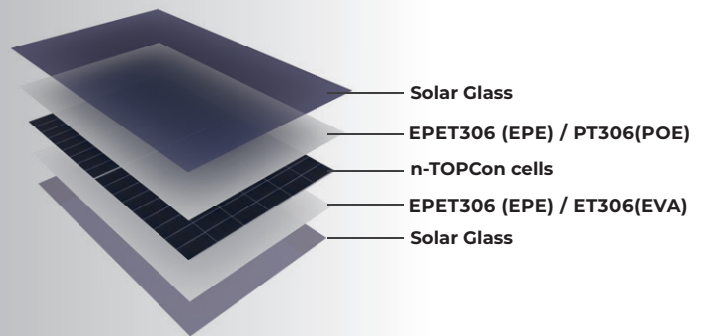
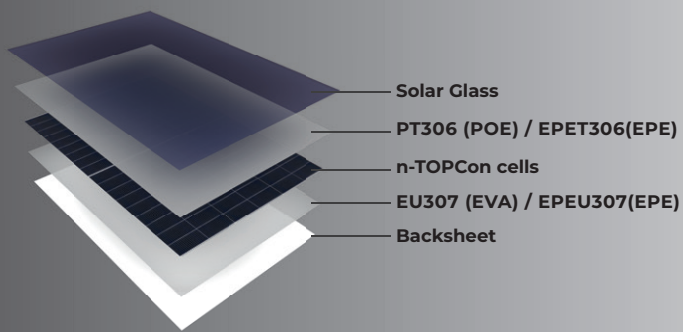
Note 1: Customers can adjust to appropriate lamination parameters according to different equipment or process.

Note 2: It is recommended to use it up within 48 hours after opening of the original packing.

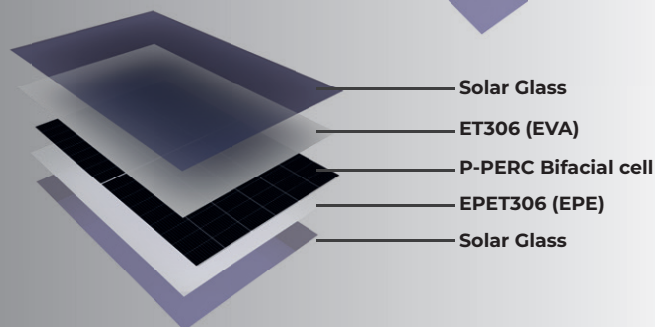
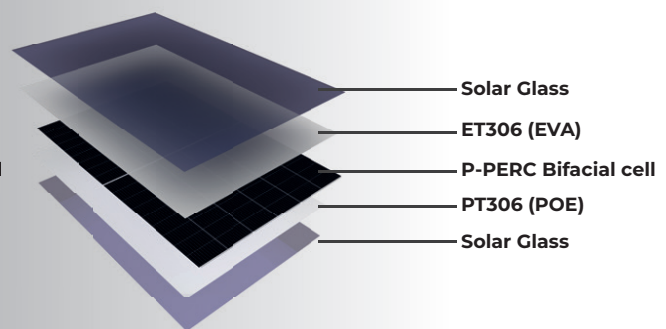
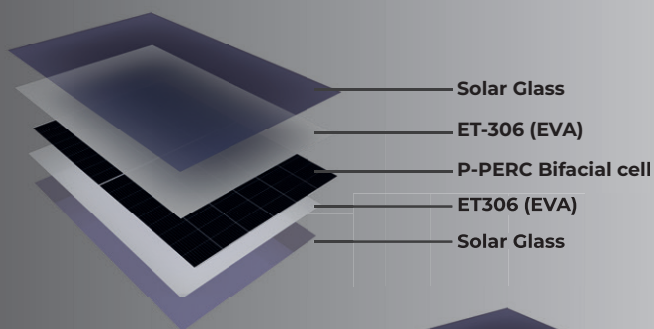
Note 3: These are typical laboratory values that may change depending on the cure conditions as well as the test conditions and methods.

UL Certification File Number: E531674

N-Topcon Modules



P-PERC Bifacial Glass-Glass Modules



P-PERC Bifacial Glass-Backsheet Modules

