Dr. HANS WERNER®
CHEMIKALIEN
'Solar Encapsulates EVA, POE, EPE Films'

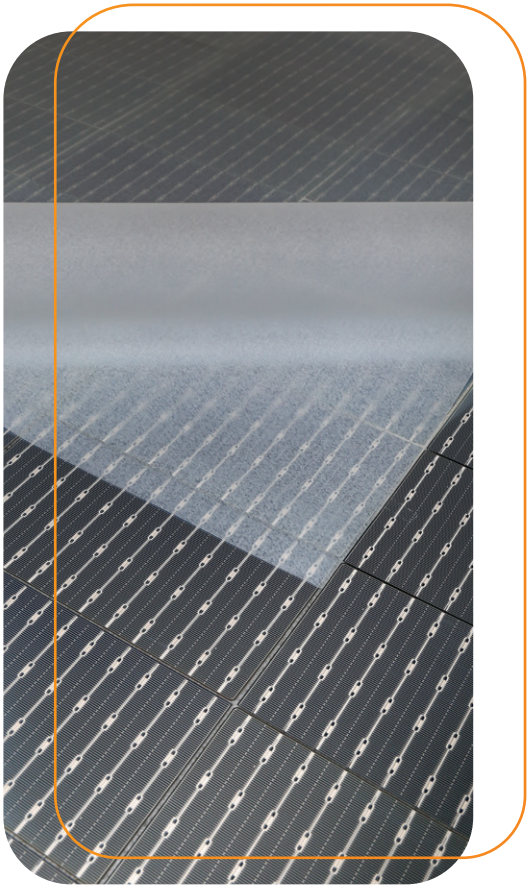
Dr. HANS WERNER CHEMIKALIEN®

EVA (Ethylene Vinyl Acetate) FILM
For Encapsulating Solar PV Panels

EU408 & ET409
FAST CURE

PRODUCT SPECIFICATION

- High Tensile Strength
- Excellent Transparency
- Outstanding Adhesion
- UV Protection
- Snail Trail Protection
- Excellent Weatherability and Long Term Reliability



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Technical Specification (Dr. HWC-EU408 - ET409 Fast Cure)

Properties	Unit	Test Method	Value	
			EU408	ET409
Total Thickness (Tolerance: ±0.05%)	mm	UPS method	0.40 ~ 0.90	
Total Width	mm	UPS method	Up to 1300	
VA Content	%	UPS method	28	28
Thermal Shrinkage (MD)	%	UPS method (On solar glass, 5 min, 125°C)	≤ 3	≤ 3
Thermal Conductivity	W/(m.K)	ISO 2207-4	0.27	0.27
Shore Hardness	Shore A	ASTM D 2240	70 ± 5	70 ± 5
Melting Point	°C	ASTM D3417	70 ± 2	70 ± 2
Degree of cross-linking (Gel Content)	%	Soxhlet Method Lamination (14 min, 145°C)	≥80	≥ 80
Adhesion to Glass (With Backsheet)	N/cm	ASTM D 903	≥ 70	≥ 70
Adhesion to Backsheet	N/cm	ASTM D 903	≥ 70	≥ 70
Ultimate Elongation (Cured)	%	ASTM D 638	≥ 400	≥ 400
Tensile Strength (Cured)	MPa	ASTM D 638	≥ 10	≥ 10
Transmission (@550nm)	%	ASTM E424	≥ 91	≥ 91
UV Cut-off Wave Length	nm	UPS method	360	UV transparent
Dielectric strength	kV/mm	ASTM D 149	≥ 25	≥ 25
Refractive Index	-	ISO 489	1.48	1.48
Water Absorption (Cured)	%	ISO 62-200805	≤ 0.1	≤ 0.1
Volume Resistivity (Cured)	Ω*cm	ASTM D 257	≥$1*10^{15}$	≥$1*10^{15}$

Lamination Recipe

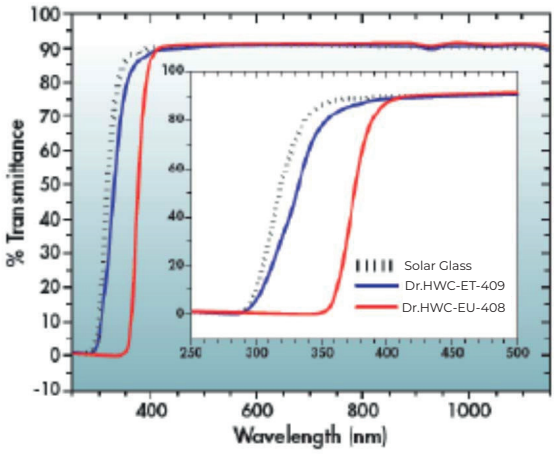
Lamination Parameters	Unit	Single Chamber	Double Chamber
Temperature	°C	145 - 150	140 - 145
Vaccum Time	min	4 - 6	3 - 4
Lamination Time	min	8 - 12	8 - 12

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.

Light Transmittance Curve



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