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

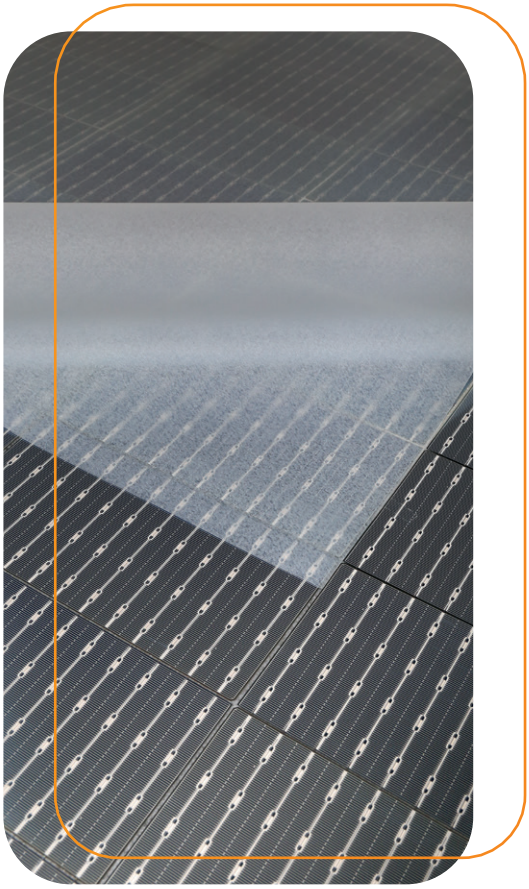
# Dr. HANS WERNER CHEMIKALIEN®

## 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: ±0.05% ) | mm | UPS method | 0.40 ~ 0.90 | |
| Total Width | mm | Scale | Up to 1300 | |
| Thermal Shrinkage (MD) | % | On solar glass (5 min, 125°C) | ≤ 3 | ≤ 3 |
| Thermal Creep | mm | 90°C, 250hrs | ≤ 1 | ≤ 1 |
| 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 (10 min,145°C) | ≥ 70 | ≥ 70 |
| Adhesion to Glass (With Backsheet) | N/cm | ASTM D 903 | ≥ 60 | ≥ 60 |
| Adhesion to Backsheet | N/cm | ASTM D 903 | ≥ 70 | ≥ 70 |
| Ultimate Elongation (Cured) | % | ASTM D 638 | ≥ 600 | ≥ 600 |
| Tensile Strength (Cured) | MPa | ASTM D 638 | 12 ± 3 | 12 ± 3 |
| Optical Transmittance | % | ASTM E424 | ≥ 91 | ≥ 91 |
| UV Cut-off Wave Length | nm | UPS Method | 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) | Ω*cm | ASTM D 257 | ≥ $1*10^{15}$ | ≥ $1*10^{15}$ |

### Lamination Recipe

| Lamination Parameters | Unit | Single Chamber | Double Chamber |
|---|---|---|---|
| Temperature | °C | 145 - 150 | 145 - 150 |
| Vaccum Time | min | 4 - 6 | 4 - 6 |
| 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.

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## Encapsulation Solutions

## For N-Topcon Modules

| Solar Glass |
| --- |
| PT306 (POE) |
| N-Topcon cell |
| EU307 (EVA) |
| Backsheet |

| Solar Glass |
| --- |
| EPET306 (EPE) |
| N-Topcon cell |
| EU307 (EVA) |
| Solar Glass |

## For P-PERC Bifacial Glass-Glass Modules

| Solar Glass |
| --- |
| EPET306 (EPE) |
| P-PERC Bifacial cell |
| EPET306 (EPE) |
| Solar Glass |

| Solar Glass |
| --- |
| ET306 (EVA) |
| P-PERC Bifacial cell |
| PT306 (POE) |
| Solar Glass |

| Solar Glass |
| --- |
| ET306 (EVA) |
| P-PERC Bifacial cell |
| EPET306 (EPE) |
| Solar Glass |

## For P-PERC Bifacial Glass-Backsheet Modules

| Solar Glass |
| --- |
| ET306 (EVA) |
| P-PERC Bifacial cell |
| EU307 (EVA) |
| White Backsheet |

| Solar Glass |
| --- |
| ET306 (EVA) |
| P-PERC Bifacial cell |
| EPEU307 (EPE) |
| Transparent Backsheet |

| Solar Glass |
| --- |
| ET306 (EVA) |
| P-PERC Bifacial cell |
| EU307 (EVA) or EPEU307 (EPE) |
| Black Backsheet |

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