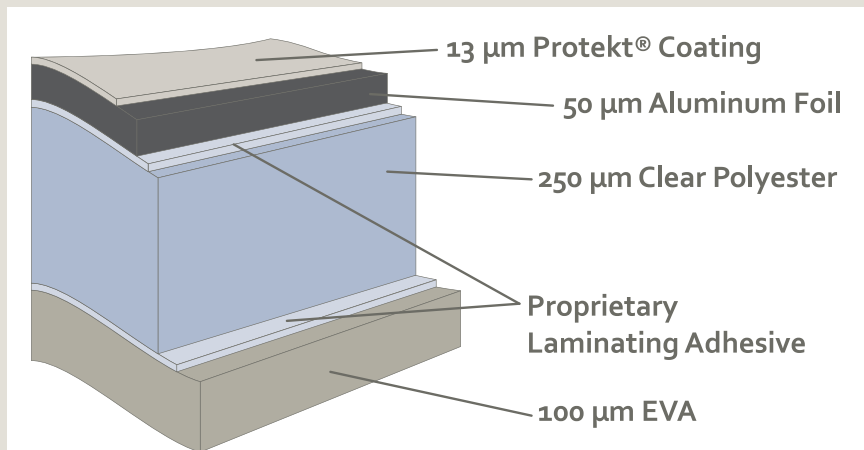


# Protekt® TFB HD

MADICO PV BACKSHEET



**Protekt® TFB HD** The Highest Performing Panels are BUILT with Madico Backsheets

Material Composition	Protekt® / AL / PET / EVA
<b>Thickness</b>	431 ± 43 µm
<b>Width Range</b>	25 - 1830 mm
<b>Weight</b>	610 g/m <sup>2</sup>
<b>Density</b>	1.41 g/cm <sup>3</sup>
<b>Protekt® Colors</b>	White, Charcoal
<b>EVA Colors</b>	Bright White, Black, Clear, Custom Colors

## Technical Characteristics

<b>Tensile Strength at Break (MD/TD)</b> Internal Testing - Data Available	64 MPa (MD) 111 MPa (TD)
<b>Elongation at Break (MD/TD)</b> Internal Testing - Data Available	155% (MD) 88% (TD)
<b>Tear Strength (MD/TD)</b> Internal Testing - Data Available	15.3 N (MD) 13.4 N (TD)
<b>Dimensional Stability (MD/TD)</b> 150°C for 30 min, Internal Testing - Data Available	< 0.5%
<b>EVA Peel Strength from Encapsulant</b> Internal Testing - Data Available	≥ 70 N/cm

## Madico Protekt® Backsheets The Market Leader for Performance, Quality and Availability

Protekt® TFB HD is a PV Backsheet developed specifically for Thin Film applications. It includes all the performance features of Protekt® HD with an aluminum layer to enhance barrier properties.

Protekt® Technology was specifically developed for the PV Industry. It is a coating that is directly applied to the base dielectric bonding layers of PET/EVA, resulting in a backsheet with excellent stability characteristics. The HD represents high dielectric performance that exhibits superior partial discharge and electrical insulation properties, providing maximum power and bond strength. Protekt® HD is the ultimate in flame resistance and durability against hydrolysis and chemical degradation. Protekt® HD has undergone extensive testing to exceed UL, TUV and industry standards; ensuring performance reliability for the life of the panel.

Protekt® is the most popular backsheet on the market and protects panels around the globe.

## Advantages

- Optimal barrier properties:  
 $MVTR \leq 0.005 \text{ g/m}^2 \times \text{day}$
- Power boost up to 5%
- Global manufacturing and supply
- Exceeds industry testing standards
- Custom colors, including our patented Bright White Technology, and Charcoal for BIPV
- Superior insulation properties
- Superior in weatherability
- Resistant to flame
- Ideal for Thin Film applications

**MADICO®**  
ISO 9001 Certified



Intertek

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### Typical Data – Not Specification

The performance representations and suitability in this Data Sheet are based on testing accomplished by Madico or its agents. Since only the manufacturer of the panel is aware of the specific manufacturing processes and conditions which the product will undergo during assembly of the PV solar panels, and of the specific conditions in which the product will ultimately be used, it is the manufacturer's responsibility to determine whether the product is suitable for its intended end-use. Protekt® is a registered trademark owned by Madico, Inc.

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The accompanying product is protected by U.S. Pat. Nos. 7,579,083 and 7,338,707 and other US and foreign pending applications. V0808 R07



**SUPERIOR IN**  
FLAME RESISTANCE



**SUPERIOR IN**  
WEATHERABILITY



**SUPERIOR IN**  
ELECTRICAL INSULATION

#### Flame Resistance Testing Performance

<b>Flame Spread Index</b> In accordance with ASTM E162	0
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#### Weatherability Testing Performance

<b>Relative Thermal Index (RTI)</b> Suitable for use at continuous 85°C	RTI=105°C
<b>Damp Heat Testing</b> 85°C, 85% RH IEC 61215	>2000 hours
<b>Heat Freeze Humidity</b> In accordance with UL 1703, >10 cycles	>70% of initial mechanical properties retained
<b>UV Stability</b> In accordance with UL 746C	>70% of initial mechanical properties retained
<b>MVTR</b> In accordance with ASTM F1249	$\leq 0.005 \text{ g/m}^2 \times \text{day}$

#### Electrical Insulation Testing Performance

<b>Partial Discharge</b> IEC 60664-1	$\geq 1000 \text{ VDC}$
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# Protekt<sup>®</sup> TFB HD

PERFORMANCE TESTING