

dnpSolar Back Sheet: **VPEW**



dnpSolar Back Sheet materials are designed to provide long lifetime to photovoltaic modules. The dnpSolar Back Sheet PV-BS VPEW is a laminated film composite made of multiple layers of hydrolysis & UV resistant PET / PET / Olefin.

This sandwich results in a good quality product in terms of reliability and UV stability

Photovoltaic modules laminated with dnpSolar Back Sheet's materials have been successfully tested by several module manufacturers and satisfy with external certification institutes.

PV-BS VPEW	Test method	Unit	Test Conditions	Value
> Material Properties Material Composition				Hydrolysis & UV Resistant PET/PET/ Polyolefin
> Basic Properties Colour Thickness	JIS-K7130 + ASTM E 252-06	mm		White 0,28
> Physical Properties Tensile Strength Elongination to Break Water Vapor Permeability Thermal Shrinkage	UL746A + ISO 527-3 JIS-K7127 UL746A + ISO 527-3 JIS-K7127 ISO 15106-2 ASTM F 1249-90 JIS-K7129 JIS-C2151 + ASTM D1204	MPa % g/(m ² *day) %	23°C , 85% RH 40°C , 90% RH 150°C, 30 min.	MD = 111 / TD = 111 MD = 122 / TD = 103 0,3 1,6 MD = 0,9 / TD = 0,4
> Electrical Properties Breakdown Voltage Partial Discharge Voltage	ASTM D 149 + IEC60243-1 IEC60664-1	kV VDC	TÜV report no. 12018410 001	25,1 1065
> Adhesion Properties Adhesion Strength to Encapsulant (EVA)	JIS-K6854-2	N/15mm	Peeling angle 180°	> 100
> Flameability Properties Maximum Flame Spread Index	ASTM E 162-02a IEC 61730-1			Passed test
> UV Properties UV Resistance	UL746C			Passed test

This information does not represent a specification.

September 2010

dnpSolar is a business unit within dnp denmark focussing on servicing the European market for Solar energy. dnpSolar is thus a part of Dai Nippon Printing Co. Ltd. (DNP), the worlds largest general printing company and the direct link to the DNP Energy Division where all development and manufacturing of materials for solar cells take place. Established in 1876, with more than 40.000 employees and with net-sales of more than 14 billion EUR, DNP has a proven track record of constant development and ground braking innovations in multiple business areas. Within recent years DNP has invested heavily in the development of components for green energy manufacturing including high-tech plastic sheets for solar cells. dnpSolar will market these product on the European market on behalf of DNP.