

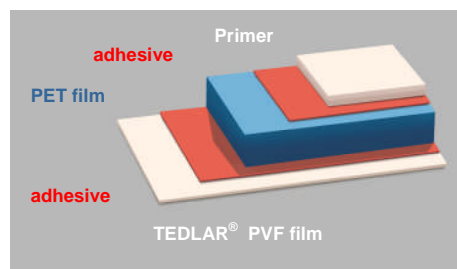
AKASOL® PTL 455

TEDLAR® + Polyester + Primer

General

AKASOL® PTL 455 is a KREMPEL laminate consisting of 25µm white TEDLAR® PVF film and polyester film. It has been developed for the specific application as a backsheet of a Photovoltaic Module which minimum requirements are described in the International Standard IEC 61730-1.

Electrical, mechanical and optical properties of AKASOL® PTL 455 remain at high level when exposed to UV radiation or to rough combined temperature/humidity conditions (e.g. 2000 h, 85%rh, 85°C). The UV stabilized, white Primer of PTL 455 gives improved adhesion to the encapsulating polymer.



TEDLAR® PVF film is a polyvinyl fluoride film from Du Pont

All tests including accelerating tests are performed on plain back sheet.

Required properties in accordance to IEC 61730-1

Property	Unit	Test method	Results	Testing laboratory
Maximum system voltage (in air)	V _{DC}	IEC 60664-1	> 1014	TÜV Rheinland® LGA
- tested without primer layer		IEC 60664-1	1014	TÜV Rheinland® LGA
UV resistance (UVA 340nm)	-	EN 4892-3	Passed ¹⁾	KREMPEL
UV resistance (Xenon arc)	-	UL 746C	Passed ²⁾	JET
Flame spread index	-	ASTM E 162	53	UL
- tested without primer layer	-	ASTM E 162	13	UL
Relative Thermal Index (RTI)	°C	UL 748B	≥ 105 ³⁾	UL
Relative Thermal Index (RTI)	°C	UL 746B	140 ⁴⁾	UL, JET

1) 2000h UV exposure with 0.68 W/m² at 340 nm; 60°C; 500 min. wetting; 1000h condensation. Total exposure time 3000h. Tested on air side and Primer side.

2) 1000h UV exposure acc. UL746C (Xenon-arc), flammability not reduced, retention of tensile strength and impact of min. 70%.

3) Generic thermal index according UL 746B table 7.1.

4) RTI tested as electrical temperature rating of TEDLAR® TWH. Mechanical temperature rating is 120/125°C.

Certificates



AKASOL® PTL 455 belongs to product family AKASOL® PTL which has UL Recognition under File No. QIHE2.E312459)



JET certification with registration no.: 1623-C9801-141.



KREMPEL GmbH Quality Standards: ISO/TS 16949 (Reg.No.068224) and ISO 9001 (Reg.No.003915).

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Additional properties not required by IEC 61730-1

Property	Unit	Test method	Typical values
Thickness	mm	EN 60674-2	0.39
Area weight	g/m ²	EN 60674-2	500
Water vapour permeability 23°C/85%rh 38°C/90%rh	g/m ² · d	ISO 15106-3	0.6
		ASTM F1249	1.9
Moisture absorption	%	DIN EN ISO 62	≤ 0.4
Dimensional stability, MD + TD (30 min. / 150 °C)	%	EN 60674-2	≤ 1.2
Reflection of visible light (380 – 780nm) ¹⁾	%	EN 410	86
Reflection of visible light with white background	%	-	91
Reflection of radiation (280 – 2500nm) ¹⁾	%	EN 410	71
Volume resistivity	Ω · cm	UL 746A	10 ¹⁶
Dielectric strength	kV/mm	UL 746A	66
High-current arc ignition	PLC	UL 746A	1

1) Tested at Primer side = cell side; direct solar radiation. Test equipment: Perkin Elmer Lambda 900 (Ulbrichtkugel), Fraunhofer ISE, Freiburg, Germany.

