

# AKALIGHT ECS® 385 b

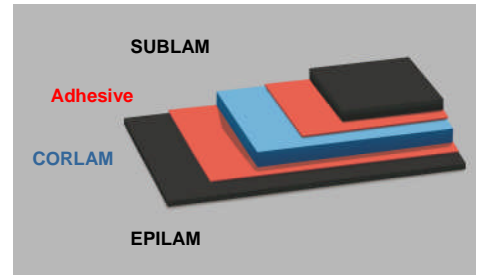
## General

AKALIGHT ECS® 385 b is a **black colored** UV-stable and hydrolytic resistant multilayer insulating material. 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 **AKALIGHT ECS® 385 b** 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 new product line **AKALIGHT ECS®** is designed to exceed the requirements for different applications of PV systems. Therefore **AKALIGHT ECS®** incorporates three basic layers with different functional importance. **CORLAM** is carrying mainly the electrical and mechanical properties of the structure. The white **EPILAM** on the outside and the black **SUBLAM** on the cell side are both providing high bonding either to the encapsulant or to the polymers used as pottings, sealants or adhesives. The design of both protective top layers responds to an evaluation of particular conditions.

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
Max. system voltage (tested in air)	V <sub>DC</sub>	IEC 60664-1	1084	VDE, Offenbach
UV resistance	-	EN 4892-3	Passed <sup>1)</sup>	KREMPEL
Flame spread index	-	ASTM E 162-09	60 <sup>3)</sup>	TÜV Rheinland® LGA
- tested without primer	-	ASTM E 162-09	5.1 <sup>3)</sup>	TÜV Rheinland® LGA
Relative Thermal Index (RTI)	°C	IEC 60216-5	≥ 105 <sup>2)</sup>	UL
Relative Thermal Index (RTI)	°C	IEC 61730-1	130 <sup>4)</sup>	JET

1) 2000h UV exposure with 0.68 W/m<sup>2</sup> at 340 nm; 60°C; 500 min. wetting; 1000h condensation. Total exposure time 3000h. Tested on both sides.

2) Generic thermal index according UL 746B table 7.1

3) Tested with white version, black in process at UL.

4) RTI from electrical temperature rating of outer PET film, mechanical temperature rating is 130°C, impact rating is 105°C.

## Certificates



AKALIGHT ECS® b is an UL Recognized Component (File No. QIHE2.E312459)



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	0.30
Area weight	g/m <sup>2</sup>	EN 60674-2	380
Water vapour permeability 38°C/90%rh	g/m <sup>2</sup> · d	ISO 15106-3 Test condition 2	2.1
Dimensional stability, MD + TD (30 min. / 150 °C)	%	EN 60674-2	≤ 1.2
Reflection of visible light (380 – 780nm) <sup>1)</sup>	%	EN 410	5.0
Reflection of radiation (280 – 2500nm) <sup>4)</sup>	%	EN 410	4.9
Volume resistivity	Ω · cm	UL 746A	10 <sup>16</sup>
Dielectric strength	kV/mm	UL 746A	70
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) Tested at Fraunhofer ISE, Freiburg, Germany