

## Technical Data

## PHOTOCAP<sup>®</sup> SC918P/UF

Photocap<sup>®</sup> SC918P/UF is a standard cure EVA (ethylene vinyl acetate copolymer) photovoltaic encapsulating film material. Photocap SC918P/UF has improved photo-thermal stability relative to Photocap A9918P/UF.

Photocap SC918P/UF can be used for all crystalline silicon photovoltaic module constructions, and for many thin film photovoltaic designs. Photocap SC918P/UF is provided as extruded rolled film ready for use in thermal lamination processes. The extruded product can be provided smooth, or with surface texture to improve vacuum lamination. Suffix "P" on the Photocap product name indicates that this grade is self-priming for adhesion to glass. Suffix "UF" indicates User Friendly, or lower shrinkage product for improved lamination stability.

Properties	Test Method	Units	Condition	Results
	ASTM			
<b>Physical Mechanical</b>				
Tensile Strength	D638	MPa	23°C, 250 mm/min elongation rate	13
Ultimate Elongation	D638	%	23°C, 250 mm/min elongation rate	500
10% Secant Modulus	D638	MPa	23°C, 250 mm/min elongation rate	7.8
Hardness	D2240	Shore A/D	23°C	69 / 21
Adhesion to Glass	STR	N/cm	23°C	70-90
Water Absorption	D570	N/cm	23°C	< 0.1
<b>Optical</b>				
Optical Transmission	E424	%	23°C, 0.46 mm thickness	92
UV Cutoff Wavelength	E424	nm	23°C, 0.46 mm thickness	360
Refractive Index	D542	-	23°C, 0.46 mm thickness	1.482
<b>Electrical</b>				
Volume Resistivity	D257	ohm cm	23°C	>1 x 10 <sup>14</sup>
Dielectric Strength	D149	kV/mm	23°C, 500V/sec	24
Dielectric Strength	D149	V/mil	23°C, 500V/sec	600

Tests are made in accordance with the current issue of the ASTM, or other cited test method. Test data reported here are nominal values measured on extruded films, 0.5 mm thick, or compression molded sheets and test bars, which have been cured at 150°C for 7 minutes with a laboratory press.

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**AGENCY APPROVALS:**

All STR Solar manufacturing plants are UL listed. Please refer to UL file numbers E310488, E335471, E335472, E335473, and E335474.  
Photocap SC918P/UF is UL listed with testing to 746D at all STR manufacturing plants. Please refer to UL file numbers E310488, E335472, E335473, and E335474.

**SHRINKAGE:**

STR's User Friendly (UF) technology results in nearly zero shrinkage during lamination with glass and PV cells. Sheets can be cut closer to final size, which results in the use of less material per module. Non shrinking material also allows for development of shorter cycle time through lamination. Many competitive EVA materials exhibit high shrink during lamination which can result in voids, shifting cells and ribbons, and longer cycle times to accommodate for these effects.

**PROCESS GUIDELINES:**

Vacuum Lamination Step		Heat Cure Cycle	
Nominal Temperature	155°C	Platen Temperature	155°C
Vacuum Range	<45 Torr	Cure Time	14 min
Evacuation Time	4 min	Applied Bladder Pressure	680 Torr
		Target Temperature within the Encapsulant	145°C
		Time Above the Target Temperature	> 4 min

*Values shown are a recommended starting point for a crystalline silicon photovoltaic module processed with a typical vacuum lamination system. Actual values required to achieve desired cure levels will depend on the specific PV module design and the lamination process used.*

All Photocap grades are based upon over 30 years of STR's commercial experience in the photovoltaic market.

For further information, please contact the nearest Specialized Technology Resources office or agent.

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