

Technical Data

PHOTOCAP[®] 35521P HLT[™]

PHOTOCAP[®] 35521P HLT is an ultra fast cure and PID resistant POE (polyolefin elastomer) photovoltaic encapsulating film with HLT[™] higher light transmission in the UV wavelength region to allow greater power generation with blue light sensitive photovoltaic devices.

PHOTOCAP 33521P HLT can be used for all photovoltaic module constructions, including thin film photovoltaic designs. PHOTOCAP 35521P HLT is provided as rolled film ready for use in thermal lamination processes. The material is self-priming for adhesion to glass and crosslinkable for improved mechanical properties and light transmission compared to pure thermoplastic POEs. The same process equipment and conditions used for other ultra-fast cure PHOTOCAP EVA encapsulant can be used for this product.

Properties	Test Method	Units	Condition	Results
	ASTM			
Physical Mechanical				
Tensile Strength	D638	MPa	23 °C, 250 mm/min elongation rate	15
Ultimate Elongation	D638	%	23 °C, 250 mm/min elongation rate	700
10% Secant Modulus	D638	MPa	23 °C, 250 mm/min elongation rate	26
Adhesion to Glass	STR	N/cm	23 °C	130
MVTR	F1249	g/m ² /day	25 °C/100sccm flow, 100%RH	5
Water Absorption	D570	wt%	23 °C	< 0.1
Optical				
Optical Transmission	E424	%	23 °C, 0.46 mm thickness	91
UV Cutoff Wavelength	E424	nm	23 °C, 0.46 mm thickness	305
Refractive Index	D542	-	23 °C, 0.46 mm thickness	1.48
Electrical				
Volume Resistivity	D257	ohm cm	23 °C/50%RH	>1 x 10 ¹⁶
Dielectric Strength	D149	kV/mm	23 °C/50% RH, 500V/sec	>20

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. Optical measurements made with glass-POE coupons with high transmission solar glass.

STR Locations

Email: sales@STRSolar.com
 Tel: 1 860 272 4235

STR – United States of America
 10 Water Street
 Enfield, CT. USA 06082

STR – Malaysia
 Plot D20, Jalan Tanjung A/3
 Port of Tanjung Pelepas
 Gelang Patah, Johor, Malaysia 81560

STR - Spain
 Parque Tech de Asturias, Parcela
 36
 Llanera, Asturias, España
 33428

STR – China
 Changkun Ind. Park No.26
 Nanxin Road, Sha Jiabang
 Changshu, Suzhou, China 215542

Technical Data
page 2

PHOTOCAP[®] 35521P HLT[™]

AGENCY APPROVALS:

PHOTOCAP 35521P is in the process of being UL listed in category QIHE2 Photovoltaic Polymeric Materials. Please refer to UL file number E310488.

PRODUCT VARIATIONS:

Suffix	Release Paper	Shrinkage	Notes
35521P/UFP HLT	No	Minimal	Paperless UF option, resulting in minimal shrinkage
35521P/PL HLT	No	Higher than UF or UFP	Possesses a greater tendency to shrink but perfectly acceptable for use in most applications

PROCESS GUIDELINES:

Vacuum Lamination Step		Heat Cure Cycle	
Nominal Temperature	150 °C	Platen Temperature	150 °C
Vacuum Range	< 60 mbar	Cure Time	10 min
Evacuation Time	5 min	Applied Bladder Pressure	910 mbar
POE Melting Range Via DSC	80 - 90 °C	Target Temperature within the Encapsulant	140 °C
		Time Above the Target Temperature	> 5 min

Processing conditions shown here are a recommended starting point for a crystalline silicon photovoltaic module processed with a typical 2-step vacuum lamination system. Actual values required to achieve desired cure levels will depend on the specific PV module design and the lamination process used.

The temperature of the encapsulant should be at or above the POE melting range before pressure is applied for the cure cycle. The encapsulant should reach the target temperature during the cure cycle, and should remain above that target temperature for the time shown. Temperatures within encapsulant should be periodically measured with embedded thermocouples to assess temperature uniformity of the laminator heating plate and the rate of heat transfer to the PV module. More information about how to laminate PV modules with PHOTOCAP encapsulants is available from STR.

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.

PHOTOCAP[®] is a registered trademark of Specialized Technology Resources, Inc. The data set forth above is believed to be accurate. It is for informational purposes only and is not to be used for specification purposes. Neither Specialized Technology Resources, Inc., nor any of its affiliates, makes any representation or warranty as to, and disclaims all liability for, the information herein. PHOTOCAP is to be used by technically skilled persons at their own discretion and risk.