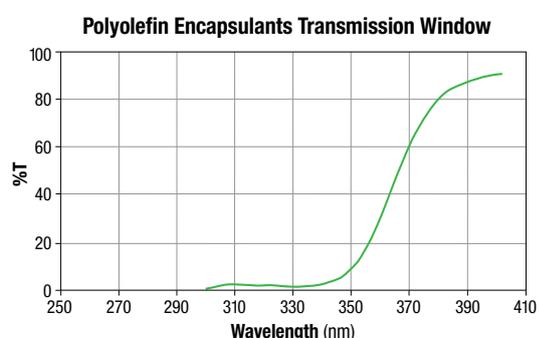


3M™ Solar Encapsulant Film P08510

Polyolefin Encapsulant for Photovoltaic Modules

Introduction

3M™ Encapsulant Film P08510 offers protection against UV aging and weathering - while enabling maximum visible light transmission to solar cells with UV cut-off wavelength 350 nm (see graph below).



Features

- Conformable and flexible for ease of lamination
- Durable bonding strength with both glass and backsheet
- Excellent UV and damp-heat stability
- Very low shrinkage rate
- High light transmission
- No acetic acid/No corrosion
- 1/10th MVTR vs. EVA
- Good compatibility with CIGS Modules
- >130°C Creep
- No transmission loss after aging (>1000 hrs)



Typical Physical Properties (data not for specification purposes)

Items	Typical Value	Test Method ¹
Type	Thermoset	
Thickness (Uncured), mil	18	ASTM F2251
Density (Uncured), g/cm ³	0.88	ASTM D792
Shrinkage (unrestricted, 150°C for 15 min)	<5%	
Tensile (Cured), MPa	9.1	ASTM D882
Elongation (Cured), %	>1000%	ASTM D882
Adhesion to Glass, N/cm	>100	ASTM D903
Water Absorption (Cured), wt%	<0.01	ASTM D570
MVTR, g/m ² -day (38°C, 100% RH)	5.5	
Hardness (Cured), Shore A	75-80	ASTM D2240
Dielectrical Strength (Cured), KV/mm	>50 kV/mm	ASTM D149
Volume Resistivity (Cured) @ RT, Ω·cm	1.0 × 10 ¹⁴	ASTM D257
Refractive Index (Cured)	1.49	ASTM D542
Haze, %	<4%	
Yellowness Index	<0	
Transmittance (Cured), %	91	ASTM D1003
UV-Cut Off (Cured), nm	350	
Continuous Service Temperature, °C	>90	
Damp Heat Resistance (85% RH, 85°C 1000h)	Δb*	0.75
	ΔT%	0

¹ Contact 3M for additional information on test methods.

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Storage

Shelf life is 6 months under proper storage conditions. The product should be stored indoors with the temperature controlled between 0°C and 30°C and relative humidity below 60%, avoiding direct sunlight. The product should not be placed near any heating equipment or exposed in a dusty place. Check the package box of stored product before unfolding. The product should be used up as soon as possible after the package is unfolded. Any unused product should be properly sealed with original package or similar package.

Suggested Laminating Conditions

Condition	Suggested Value
Lamination Temperature	320°F (160°C)
Evacuation Time	4 Minutes
Press Time	11 Minutes

Vacuum time and temperature in the laminator are very critical for final properties. Use of thermocouples is suggested to monitor the temperature to achieve the right gel percentage.

DSC and DMA can be used for designing the appropriate lamination cycle if temperature and time are other than the suggested conditions listed above.

For optimum performance, 3M recommends a gel percentage between 65% and 80%.

Contact 3M for additional information.

Precautionary Information

Refer to the product label and Safety Data Sheet for health and safety information before using this product. For additional health and safety information, call 1-800-364-3577 or (651) 737-6501.

United States

800 755 2654

France

33 1 30316161

China

86 21 62753535

Brazil

0800 13 23 33

Malaysia

603 78062888

Germany

49 2131 144450

United Kingdom

44 1344 858000

South Korea

82 2 3771 4043

Mexico

52 55 52702250

Other Areas

800 755 2654

Denmark

45 43 480100

Italy

39 02 70351

India

91 80 22231414

Taiwan

886 933 896752

Spain

34 91 3216000

Singapore

65 6450 8888

Canada

800 364 3577

Japan

81 3 3709 8283

For more information on our solar manufacturing product line, contact 3M Renewable Energy at 800-755-2654 or visit us at 3M.com/solar.

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