

3M™ Solar Encapsulant Film EVA9000

EVA Encapsulant for Photovoltaic Modules

Introduction

3M™ Solar Encapsulant Film EVA9000 is a fast cure encapsulant that is designed to work with PV modules with protection against UV-aging and weathering while helping to ensure maximum amount of visible light transmission to solar cells.

Features

- Conformable and flexible for ease of lamination
- Durable bonding strength with both glass and backsheets
- Excellent UV and damp-heat stability
- Very low shrinkage rate
- High light transmission

Storage

Shelf life is 6 months under proper storage conditions. The product should be stored indoor with the temperature controlled between 0°C–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 opened. The unused product should be properly sealed with original package or similar package.



Typical Physical Properties (data not for specification purposes)

Items		Test Method ¹	Units	Typical Value
Thickness (Uncured)		ASTM F2251	mm	0.42-0.65
Density (Uncured)		ASTM D792	g/cm ³	0.922
Tensile (Cured)	MD	ASTM D882	MPa	7.19
	TD		MPa	8.95
Elongation (Cured)	MD	ASTM D882	%	769
	TD		%	828
Adhesion to Glass		ASTM D903	N/cm	89.8
Water Absorption (Cured)		ASTMD570	wt%	<0.01
Hardness (Cured)		ASTM D2240	Shore A	70.9
Dielectrical Strength (Cured)		ASTM D149	KV/mm	49.9
Volume Resistivity (Cured)		ASTM D257	Ω-cm	1.29 × 10 ¹⁴
Surface Resistivity (Cured)		IEC61340-2	ohms	8.1 × 10 ¹²
Refractive Index (Cured)		ASTM D542		1.49
Transmittance (Cured)		ASTM D1003	%	92
UV-Cut Off (Cured)			nm	362
Dimensional Stability (Uncured)	MD	ASTM D1204	%	1.5
	TD		%	0.39
CTE (Cured) ¹	MD	ASTME831	µm/m°C	280
UV Resistance (32kWh/m ²)	Δb*	ASTM G154		1.12
UV Resistance (32kWh/m ²)	ΔT%			1.1
"Damp Heat Resistance (85% RH, 85°C 1000h)"	Δb*	IEC 61215		1.2
	ΔT%			1.6

¹ Contact 3M for additional information on test methods.

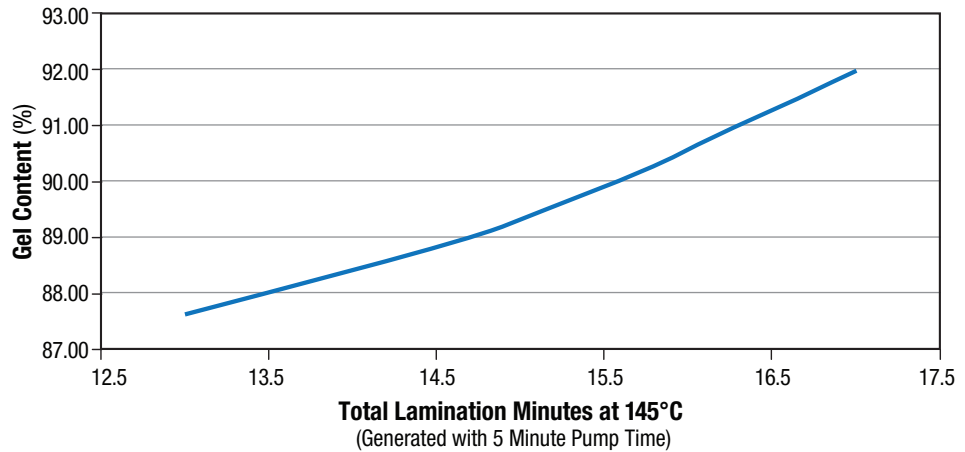
Precautionary Information

Refer to Material Safety Data Sheet for health and safety information before using this product. For additional health and safety information, visit www.3M.com/msds or call 1-800-364-3577 or (651) 737-6501.

Suggested Laminating Conditions

Condition	Suggested Value U.S. (metric)
Lamination Temperature	284-293°F (140-145°C)
Evacuation Time	4–7 Minutes
Press Time	8–15 Minutes

**Gel % of 3M Solar Encapsulant Film EVA9000²
after Lamination at 145°C at 5 Minutes
Evacuation (or Pump) and 8, 10, 12 Minutes Press.**



² Gel content measured in toluene at 60°C. For additional information on test method, contact 3M.

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

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98-0150-0170-8

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