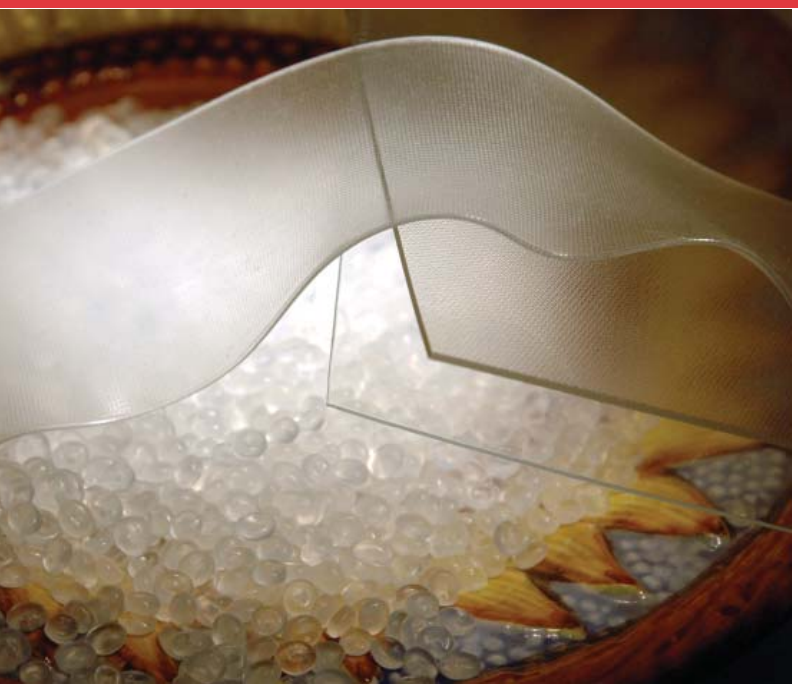
DuPont™ PV5300 Series

photovoltaic encapsulant sheets based on DuPont™ SentryGlas®

New ionomer-based encapsulant sheet adds strength, clarity, moisture resistance and dielectric property advantages versus EVA and PVB



DuPont Photovoltaic Solutions offers the world's broadest choice of photovoltaic encapsulants, including EVA-, PVB-, ionomer- and copolymer-based sheets and resins.

To make more durable solar cells, manufacturers seek ways to preserve sun-facing clarity, while sealing and buffering cells against environmental attack and physical abuse. The term "encapsulant" refers to clear polymer resins and sheets that protect and weather-seal their finished modules. Both rigid and flexible cells rely on encapsulants, and DuPont has supplied a greater volume and variety of these materials than any other raw material supplier to the PV industry.

DuPont™ PV5300 Series encapsulant sheets are an ionomer-based technology bringing interesting new performance properties to module manufacturers.

CLEAR, TOUGH IONOMER PERFORMANCE

Tough enough for golf balls and bowling pins, DuPont ionomers have also found loyal fans in the world of package sealing and safety glass laminating.

DuPont ionomer-based laminating sheets have been used in glass for more than two decades to help meet hurricane impact codes and build lighter, stronger glazed structures. Compared with conventional PVB sheets of similar thickness, DuPont™ PV5300 Series ionomer-based encapsulant sheets are 5 times tougher and up to 100 times more rigid.

INCREASE SYSTEM RIGIDITY, REDUCE MOISTURE EFFECTS

Because DuPont™ PV5300 Series sheets are so much stiffer than PVB or EVA, they can enable stronger module designs offering reduced deflections under buffeting winds ... even when used in thinner cross-sections in new designs.

Table 1 provides a summary of key physical test data for DuPont™ PV5300 Series encapsulant sheets.

SHEETS OPTIMIZED FOR PV MODULE MANUFACTURING

DuPont ionomer-based glass laminating sheets have created new performance levels in building facades, flooring, overhead glazing, cantilevered glass structures, and high-security glass applications.

Adapting advanced DuPont sheet technology to meet the needs of photovoltaic module manufacturing is expected to lead to similar advantages in module durability, assembly efficiency, and design innovations particularly in the area of building-integrated PV.

energy for a thriving world™

"ROOF Collection" building-integrated photovoltaic (BIPV) roofing tiles from SYSTEM Photonics in Italy use DuPont™ PV5300 Series encapsulants for extra strength and weather durability in an elegant, open-edged module design.

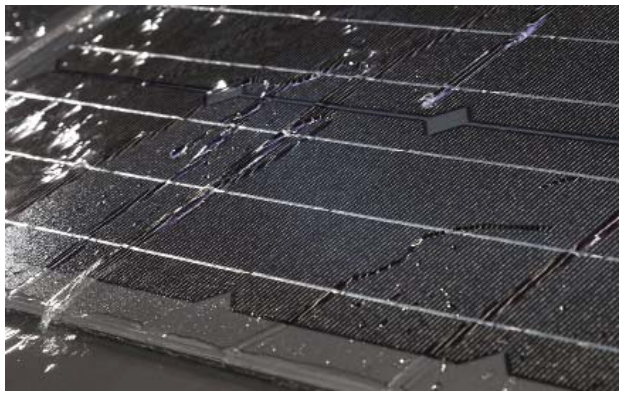


Table 1 - Properties of DuPont PV5300 Ionomer-based Encapsulant Sheet

Physical Properties				
Property	**Test Method**	**Test Conditions**	**Units**	**Value**
Specific Gravity	ASTM D792	23°C		0.95
Mechanical Properties				
Property	**Test Method**	**Test Conditions**	**Units**	**Value**
Tensile Strength	ASTM D638	23°C / 50% RH	MPa	34.5
			Kpsi	5
Elongation at Break	ASTM D638	23°C / 50% RH	%	400
Young's Modulus	ASTM D5026	23% RH, 23°C	MPa	300
			Kpsi	43.5
Optical Properties				
Property	**Test Method**	**Test Conditions**	**Units**	**Value**
Refractive Index	ASTM D542	23°C		1.49
Yellowness Index - 35mil/ 0.89mm	ASTM D313			1.5
Luminous Transmittance - 35mil/ 0.89mm	ASTM D1003		%	94.3
Thermal Properties				
Property	**Test Method**	**Test Conditions**	**Units**	**Value**
Coefficient of Thermal Expansion	ASTM D696	-20 to +32°C	10^{-5} cm/cm-°C	10-15
Melt Point	ASTM D3418		°C	83
Melt Flow Rate	ASTM D1238	190°C / 2160 g	g/10 min	1.8
Electrical Properties				
Property	**Test Method**	**Test Conditions**	**Units**	**Value**
Surface Resistivity	ASTM D257	23°C / 30% RH	Ohms	1×10^{16}
Volume Resistivity	ASTM D257	23°C / 50% RH	Ohm-cm	2.5×10^{16}
Dielectric Constant	ASTM D150	25°C / 1Hz		2.9
Moisture Properties				
Property	**Test Method**	**Test Conditions**	**Units**	**Value**
WVTR - 35mil/ 0.89mm	ASTM F1249	38°C / 100% RH	g/m^2-day	0.3

Available DuPont™ PV5300 Series encapsulant sheet thicknesses range from 35 mil (0.89 mm) to 60 mil (1.52 mm), providing a customizable solution to innovative module designs.

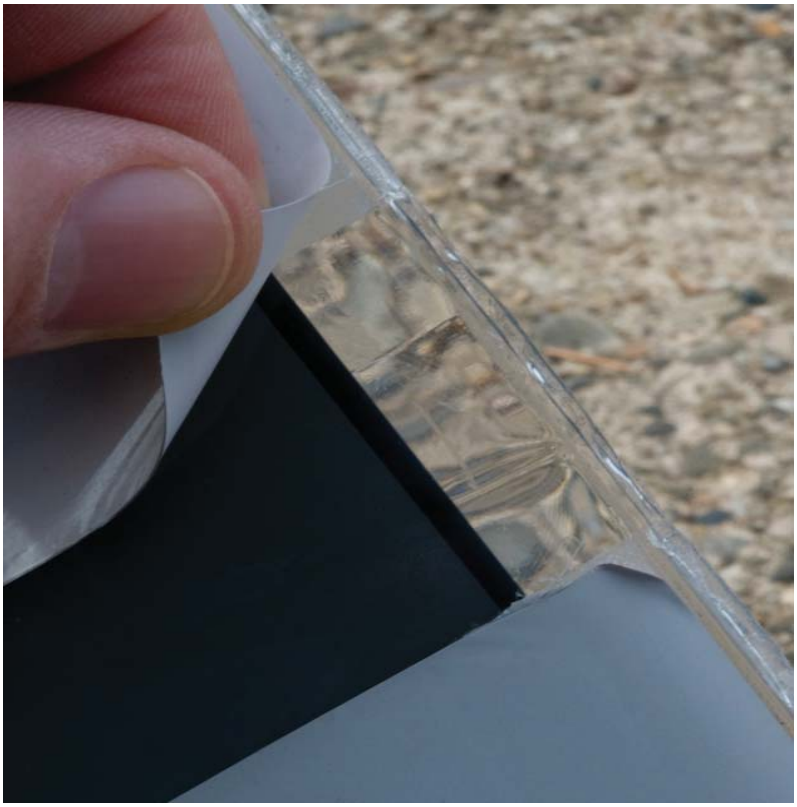
UNMATCHED IONOMER SCIENCE AND R&D SUPPORT

During the last two years, DuPont has invested more in R&D and capital facilities to serve the PV industry, than any other encapsulants supplier. No other research partner can better help you find more productive paths to manufacturing speed and cost-efficiencies using ionomer film and sheet technology.

DuPont™ PV5300 Series encapsulants are part of a broad and growing portfolio of PV-related products from DuPont, drawing not only from traditional PV supply experience but also from related industries such as packaging films and seals, roofing liners and membranes, and industrial panel manufacturing.

DuPont supports its DuPont™ PV5300 Series customers with a dedicated 30-person PV encapsulants application development team offering access to fully equipped DuPont™ PV materials and module assembly and testing labs in America, Europe and Asia Pacific.

Technical development and test support capability from DuPont ranges from weathering and material interaction to full-scale module assembly, efficiency, dielectric and mechanical testing.



DuPont™ PV5300 encapsulant sheets protect sensitive module components, providing a highly transparent cushion against impact, and a durable seal against moisture ingress.

For more information about
DuPont™ PV5300 Series encapsulants
or other DuPont Photovoltaic Solutions:

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