

Global Photovoltaic EVA Encapsulant Film Market 2026

Market size, segmentation, competitive landscape and outlook

2021-2031

Moving forward, together



Every one of us has, at some point, heard the line from *Alice in Wonderland*: “It takes all the running you can do, to keep in the same place. If you want to get somewhere else, you must run at least twice as fast.” Cliché as the quote has become, our world is changing at extraordinary speed. And yet, to my mind, it matters not only to run fast, but — more importantly — to know where you are running.

We see ourselves as the navigator, ready at the right moment to point out the correct course. By providing current, timely information for the decisions that matter, we aim to protect our clients from missteps and to help them find new opportunities.

It matters to us that you are satisfied with the work we have done. If you have any questions about this report, we will be glad to answer them.

ANDREY SHEVCHENKO, Managing Partner

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Market at a glance

This demo shows the **form and depth** of the report — real narrative with the detailed figures and tables masked as “XXX”. When you order the report, every figure is finalised and verified for your copy, and the full report is delivered within 24–72 hours.

Indicator	Value
Market size (2025)	USD 3.9 bn
Forecast (2031)	USD 6.8 bn
CAGR (2021-2031)	9.8%
Study period	2021-2031
Largest region	Asia-Pacific · 73.4%
Fastest-growing region	Middle East and Africa · 12.7%
Market concentration	High
Licence	Individual / Company

The global photovoltaic EVA encapsulant film market reached USD XXX billion in 2025 and will expand to USD XXX billion by 2031, advancing at a XX% CAGR. Demand is scaling with annual photovoltaic installations, which reached approximately 690 GW in 2025, while the migration to n-type cells, bifacial modules and glass-glass construction is raising encapsulant performance requirements. Transparent EVA remains the volume standard because it combines optical transmission, rapid lamination and competitive cost, while white, UV-management and anti-acid grades are capturing higher-value applications. Asia-Pacific controls manufacturing and consumption, but regional module-capacity expansion in India, the United States, Europe and the Middle East is creating a more geographically distributed customer base.

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Executive summary

The global photovoltaic EVA encapsulant film market reached USD XXX billion in 2025 and will expand to USD XXX billion by 2031, advancing at a XX% CAGR. Demand is scaling with annual photovoltaic installations, which reached approximately 690 GW in 2025, while the migration to n-type cells, bifacial modules and glass-glass construction is raising encapsulant performance requirements. Transparent EVA remains the volume standard because it combines optical transmission, rapid lamination and competitive cost, while white, UV-management and anti-acid grades are capturing higher-value applications. Asia-Pacific controls manufacturing and consumption, but regional module-capacity expansion in India, the United States, Europe and the Middle East is creating a more geographically distributed customer base.

Indicator	Value
Market size 2025	XXX
Forecast 2031	XXX
CAGR	XXX
Largest region	XXX
Fastest region	XXX

Key findings

- The market generated USD XXX billion in 2025 and is forecast to reach USD XXX billion in 2031.
- Global photovoltaic installations reached approximately 690 GW in 2025 and cumulative installed capacity reached 2.96 TW, according to IEA PVPS.
- China installed 415 GW of photovoltaic capacity in 2025, accounting for approximately XX% of global additions, according to IEA PVPS.
- N-type wafers represented approximately XX% of crystalline-silicon cell production in 2025, increasing demand for higher-resistivity and acid-management encapsulation systems.
- Transparent EVA represented XX% of photovoltaic EVA encapsulant film revenue in 2025.
- Glass-backsheet modules accounted for XX% of EVA film demand, while glass-glass module applications are growing at XX% annually.
- Asia-Pacific represented XX% of 2025 revenue because China hosts the majority of global cell, module and encapsulant conversion capacity.
- Utility-scale modules generated XX% of EVA film demand in 2025.

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Market size and forecast

Market value by year, USD bn

Indicator	2026	2027	2028	2029	2030	2031	CAGR
Market value, USD bn	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Market volume	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Production	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Imports	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Exports	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Apparent consumption	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: XXX

Year-over-year value change

Indicator	2027	2028	2029	2030	2031	CAGR
Market value	X%	X%	X%	X%	X%	X%
Production	X%	X%	X%	X%	X%	X%
Imports	X%	X%	X%	X%	X%	X%
Exports	X%	X%	X%	X%	X%	X%

Source: XXX

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Photovoltaic EVA Encapsulant Film Market Trends and Growth Drivers

Photovoltaic encapsulation is moving from a standardized consumable toward a cell-architecture-specific materials system. Module makers are balancing EVA's low cost and mature processing window against the higher moisture resistance and electrical insulation offered by POE, making formulation improvements critical to EVA's long-term position.

The market's volume trajectory remains anchored to module production, but value creation increasingly depends on white, high-resistivity, anti-acid and UV-management grades. Lamination-cycle reduction, gauge control and lower scrap rates can create more customer value than a narrow reduction in film price because module lines operate at increasingly high throughput.

Geographic diversification is altering supplier strategy. Chinese scale remains decisive, yet customers outside China increasingly require local inventories, technical-service teams, auditable origin data and supply chains insulated from tariffs and shipping disruption.

Growth drivers

Record solar-module output expands the addressable film pool

Each gigawatt of crystalline-silicon module output requires encapsulant on both sides of the cell circuit, tying film consumption directly to module throughput. Global photovoltaic additions reached approximately 690 GW in 2025, and continued capacity deployment supports high-single-digit growth in encapsulant area even as module wattage and cell efficiency rise.

N-type TOPCon raises electrical-reliability requirements

TOPCon became the dominant cell architecture as n-type wafers reached approximately XX% of crystalline-silicon production in 2025. Module manufacturers are specifying higher volume resistivity, lower ionic mobility and improved acid control, supporting premium EVA formulations and hybrid encapsulation configurations.

Bifacial glass-glass modules increase film area and specification intensity

Bifacial modules require high optical transmission and stable adhesion on both sides of the cell stack, while glass-glass designs raise expectations for moisture resistance and long-duration lamination integrity. The format is gaining share in utility-scale projects, particularly in deserts, high-albedo sites and high-humidity environments.

Regional module manufacturing creates localized supply opportunities

Manufacturing incentives and trade measures are expanding module assembly in India, the United States, Türkiye, Saudi Arabia and the European Union. Local film production reduces transport time, inventory exposure and qualification-response cycles for module manufacturers operating outside China's mature

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supply cluster.

Bankability requirements favor qualified high-durability formulations

Developers and lenders increasingly assess degradation, potential-induced degradation and damp-heat performance when selecting module suppliers. Encapsulants with proven adhesion retention, controlled crosslinking and stable optical transmission support longer warranties and command preferred-supplier status.

Emerging-market utility solar broadens demand

India, Pakistan, Saudi Arabia, the United Arab Emirates, Brazil and parts of Africa are adding large project pipelines as low module prices improve solar economics. These climates also require formulations engineered for ultraviolet exposure, heat, humidity or desert temperature cycling.

Restraints

POE and EPE gain share in moisture-sensitive modules

POE offers lower water-vapor transmission, higher electrical resistivity and no acetic-acid generation, making it attractive for n-type and glass-glass modules. Co-extruded EPE structures reduce the POE content required while retaining barrier performance, limiting EVA's share in premium configurations.

Film overcapacity compresses pricing and margins

Rapid capacity additions by Chinese and regional converters have increased qualification-ready supply faster than near-term module demand. Procurement auctions and shorter contract cycles are passing resin-cost reductions through to module manufacturers and constraining revenue growth relative to film-area growth.

Acetic-acid and PID concerns restrict EVA in demanding designs

EVA degradation can generate acetic acid under sustained heat and moisture, contributing to corrosion and electrical-performance loss when module materials are poorly matched. High-voltage systems and moisture-sensitive cell metallization therefore require tighter formulation control or alternative rear-side encapsulation.

Feedstock volatility disrupts converter economics

Photovoltaic-grade EVA resin requires a high and tightly controlled vinyl-acetate content, creating a narrower qualified supply base than general-purpose EVA. Changes in resin operating rates, vinyl-acetate monomer costs and import availability can move film margins before contract prices reset.

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Driver and Restraint Impact on the Photovoltaic EVA Film Forecast

Drivers — impact on forecast

Driver	Impact on CAGR	Geography	Horizon
Record solar-module output expands the addressable film pool	XXX	XXX	XXX
N-type TOPCon raises electrical-reliability requirements	XXX	XXX	XXX
Bifacial glass-glass modules increase film area and specification intensity	XXX	XXX	XXX
Regional module manufacturing creates localized supply opportunities	XXX	XXX	XXX
Bankability requirements favor qualified high-durability formulations	XXX	XXX	XXX
Emerging-market utility solar broadens demand	XXX	XXX	XXX

Source: XXX

Restraints — impact on forecast

Restraint	Impact on CAGR	Geography	Horizon
POE and EPE gain share in moisture-sensitive modules	XXX	XXX	XXX
Film overcapacity compresses pricing and margins	XXX	XXX	XXX
Acetic-acid and PID concerns restrict EVA in demanding designs	XXX	XXX	XXX
Feedstock volatility disrupts converter economics	XXX	XXX	XXX

Source: XXX

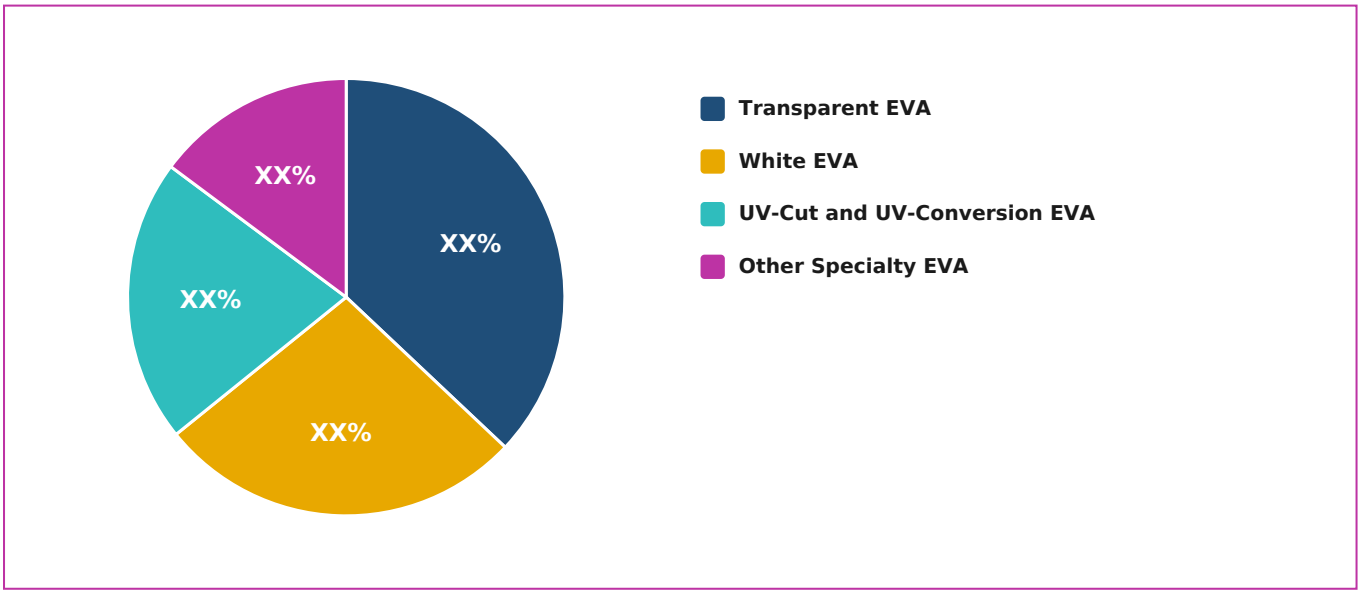
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Photovoltaic EVA Encapsulant Film Market Segmentation Analysis

By Film Type

Transparent EVA is the standard front-side encapsulant because it delivers high light transmission, proven lamination behavior and the lowest qualified system cost. White EVA is gaining on module rear sides where reflectivity can increase cell light utilization and power output. UV-cut, UV-conversion and specialty films address cell sensitivity, spectral management and differentiated reliability requirements.

Value share by film Type, 2025



Source: XXX

Value by film Type, USD bn

Segment	2026	2027	2028	2029	2030	2031	Share 2025	CAGR
Transparent EVA	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
White EVA	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
UV-Cut and UV-Conversion EVA	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Other Specialty EVA	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: XXX

By Module Construction

Glass-backsheet construction remains the largest EVA application because of its installed manufacturing base and strong position in residential and commercial modules. Glass-glass modules are expanding in utility-scale and bifacial applications, where the rear encapsulant must provide stable adhesion and

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electrical insulation under extended damp-heat exposure. Flexible and specialty laminates remain a small but technically diverse segment.

Value by module Construction, USD bn

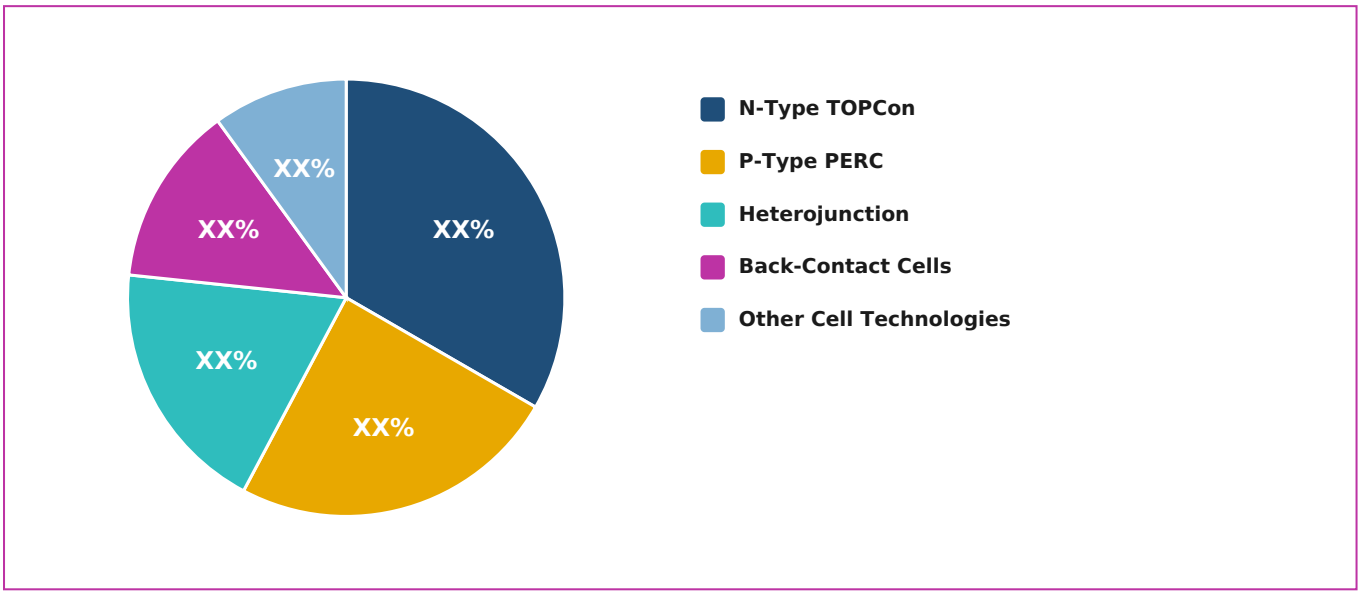
Segment	2026	2027	2028	2029	2030	2031	Share 2025	CAGR
Glass-Backsheet Modules	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Glass-Glass Modules	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Flexible and Other Laminates	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: XXX

By Cell Technology

TOPCon's rapid production ramp has made it the largest end-use platform and increased demand for high-resistivity, anti-PID and anti-acid EVA. PERC remains significant in installed production lines but declines through the forecast period. Heterojunction and back-contact cells generate premium opportunities for low-temperature lamination and UV-management films, although POE competition is stronger in these architectures.

Value share by cell Technology, 2025



Source: XXX

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Value by cell Technology, USD bn

Segment	2026	2027	2028	2029	2030	2031	Share 2025	CAGR
N-Type TOPCon	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
P-Type PERC	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Heterojunction	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Back-Contact Cells	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Other Cell Technologies	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: XXX

By Application

Utility-scale projects dominate because they absorb the majority of global module shipments and increasingly use bifacial, large-format modules. Commercial and industrial rooftops favor high-efficiency modules and bankable material combinations, while residential demand places greater weight on warranties, aesthetics and fire certification. Floating PV, agrivoltaics and building-integrated systems form the fastest-growing specialty group.

Value by application, USD bn

Segment	2026	2027	2028	2029	2030	2031	Share 2025	CAGR
Utility-Scale Solar	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Commercial and Industrial Solar	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Residential Solar	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Floating, Agrivoltaic and Specialty PV	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: XXX

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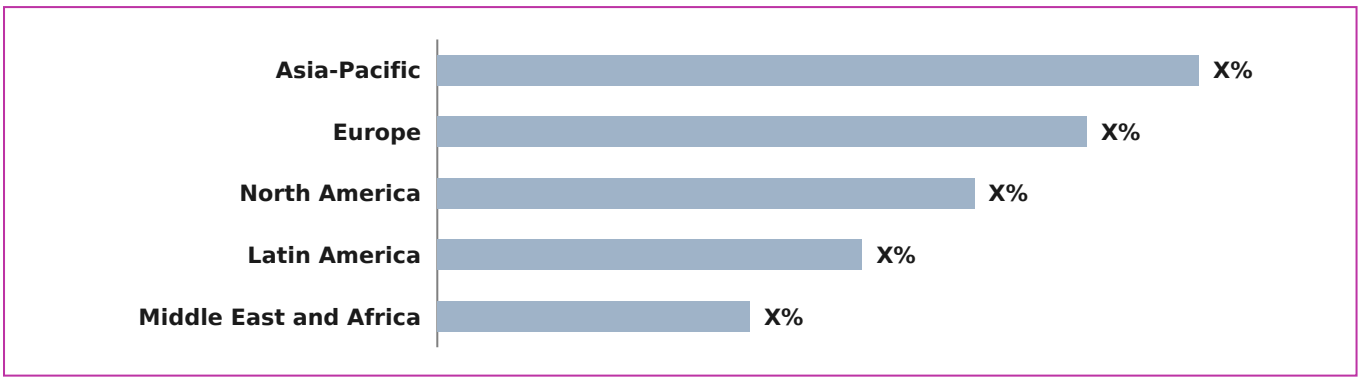
Photovoltaic EVA Encapsulant Film Market Regional Analysis and Country Outlook

Asia-Pacific generated XX% of global revenue in 2025, reflecting China's dominant position in wafer, cell, module and encapsulant production. China remains the industry's scale and price-setting center, while Southeast Asian plants provide export-oriented production and India is building a domestic module-material ecosystem around its expanding manufacturing base. Japan and South Korea retain importance in advanced polymer chemistry, resin technology and premium module specifications.

Europe and North America together represented XX% of market value in 2025. Demand in these regions is smaller in volume but carries higher average selling prices because buyers emphasize traceability, qualification support, domestic-content strategies and extended durability. European carbon-footprint and ecodesign initiatives will increasingly reward material transparency, while U.S. manufacturing incentives support regional module assembly and associated encapsulant qualification.

The Middle East and Africa is forecast to grow at XX% annually through 2031, the fastest regional rate, as Saudi Arabia, the United Arab Emirates, Oman, South Africa and Egypt develop utility-scale solar and module-manufacturing capacity. High irradiation, heat, dust and large temperature swings favor UV-stable and low-degradation formulations. Latin America remains led by Brazil, with Mexico and Chile supporting additional demand through distributed generation, utility procurement and export-oriented manufacturing.

Growth rate by region, 2025-2031



Source: XXX

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Market value by region, USD bn

Region	2026	2027	2028	2029	2030	2031	Share 2025	CAGR
Asia-Pacific	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Europe	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
North America	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Latin America	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Middle East and Africa	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: XXX

Market value by leading country, USD bn

Country	2025	2031	Share 2025	CAGR
United States	XXX	XXX	XXX	XXX
Germany	XXX	XXX	XXX	XXX
United Kingdom	XXX	XXX	XXX	XXX
Belgium	XXX	XXX	XXX	XXX
Netherlands	XXX	XXX	XXX	XXX
Japan	XXX	XXX	XXX	XXX
China	XXX	XXX	XXX	XXX
Mexico	XXX	XXX	XXX	XXX

Source: XXX

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Photovoltaic EVA Encapsulant Film Competitive Landscape and Company Share

The market is highly concentrated at the top and fragmented among regional converters below the leading group. Hangzhou FIRST Applied Material is the scale leader, supported by multi-billion-square-meter output, close integration with Chinese module manufacturers and production assets in China and Southeast Asia. Shanghai HIUV, Betterial, Sveck and Cybrid form the next competitive tier, while RenewSys, Vishakha Renewables and Satinal are strengthening regional positions outside China.

Competition centers on qualification speed, film uniformity, crosslinking consistency, optical transmission, adhesion retention and delivered cost per module. Suppliers are extending portfolios from conventional transparent EVA into white, anti-PID, anti-acid, UV-management and low-temperature-cure grades. Overseas plants and technical-service centers are becoming more important as module production localizes and customers seek shorter, tariff-resilient supply chains.

Capacity additions have intensified price pressure, but premium programs remain less commoditized because changes to encapsulant chemistry can require module-level reliability testing. Strategic investment is shifting toward co-extrusion, thinner-gauge processing, digitally controlled quality systems and formulations compatible with TOPCon, heterojunction and back-contact cells. Partnerships with resin producers and module manufacturers are increasingly important for controlling raw-material variability and accelerating product qualification.

Leading companies

Company	HQ	Est. revenue 2025	Market share 2025	YoY
Hangzhou FIRST Applied Material Co., Ltd.	XXX	XXX	XXX	XXX
Shanghai HIUV New Materials Co., Ltd.	XXX	XXX	XXX	XXX
Betterial Film Technology Co., Ltd.	XXX	XXX	XXX	XXX
Jiangsu Sveck Photovoltaic New Material Co., Ltd.	XXX	XXX	XXX	XXX
Cybrid Technologies Inc.	XXX	XXX	XXX	XXX
RenewSys India Pvt. Ltd.	XXX	XXX	XXX	XXX
Vishakha Renewables Pvt. Ltd.	XXX	XXX	XXX	XXX
Satinal S.p.A.	XXX	XXX	XXX	XXX
Mitsui Chemicals, Inc.	XXX	XXX	XXX	XXX
Bridgestone Corporation	XXX	XXX	XXX	XXX

Source: XXX

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Photovoltaic EVA Encapsulant Film Market Forecast and Opportunities

Global EVA encapsulant film revenue will rise from USD XXX billion in 2025 to USD XXX billion in 2031. Film-area demand will grow faster than revenue during the early forecast period because intense conversion capacity and resin availability will restrain pricing, followed by firmer value growth as advanced formulations take a larger share.

EVA will remain the largest individual photovoltaic encapsulant chemistry through 2031, anchored by its cost, processing familiarity and established qualification base. Its application mix will become more selective: standard EVA will dominate cost-sensitive glass-backsheet modules, while anti-acid, high-resistivity and white grades will defend share in n-type and glass-glass platforms.

The strongest suppliers will combine cost leadership with module-level materials engineering. The upside scenario is driven by faster global installations and successful anti-acid EVA adoption in TOPCon; the downside scenario reflects slower module output, continued film overcapacity and more rapid substitution by POE or EPE. Regional production, auditable carbon data and formulations compatible with recycling-oriented module design will become material purchasing criteria before the end of the forecast period.

Opportunities

- Anti-acid EVA for TOPCon and moisture-sensitive metallization systems
- White EVA for reflective rear encapsulation and power enhancement
- UV-conversion films for advanced cell architectures
- Fast-cure and low-temperature lamination formulations
- Localized film production in India, the United States, Europe and the Middle East
- Recyclability-oriented and low-carbon encapsulant formulations

> This preview shows the form and depth of the report. The full report contains every figure, segment- and country-level detail and full company profiles. On purchase all figures are finalised and verified, and the report is delivered within 24–72 hours.

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