

Global Perovskite Encapsulation Film Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global Perovskite Encapsulation Film market size was valued at US\$ 3.79 million in 2025 and is forecast to a readjusted size of US\$ 96 million by 2032 with a CAGR of 58.6% during review period.

Perovskite Encapsulation Film is a functional polymer film used for the lamination and encapsulation of single-junction perovskite photovoltaic modules, perovskite-silicon tandem modules, and flexible perovskite photovoltaic devices. It is normally positioned between the photovoltaic device stack and the cover glass, backsheet, or flexible barrier substrate to provide adhesion, gap filling, mechanical stress relief, electrical insulation, and optical coupling, while reducing damage caused by moisture, oxygen, ultraviolet radiation, and thermal stress.

Major material systems include low-crystallinity polyolefin elastomer films, thermoplastic polyolefin films, and other modified polyolefin encapsulants. Key requirements include low-temperature lamination, low water-vapor transmission, high optical transmission, low modulus, low thermal shrinkage, absence of acidic volatile by-products, resistance to ultraviolet and damp-heat aging, and long-term chemical compatibility with the perovskite absorber, charge-transport layers, transparent conductive oxides, and metal electrodes.

Global shipments of perovskite encapsulation film were approximately 0.8 million square meters in 2025, with an average price of approximately USD 4.6 per square meter and gross margins of approximately 25% to 38%.

Perovskite encapsulation film is evolving from a laboratory consumable into a critical functional material that determines module lifetime and commercial bankability. Perovskite absorbers are sensitive to moisture, oxygen, heat, and ultraviolet radiation, while conventional high-temperature EVA lamination can cause lattice decomposition, interface damage, and electrode corrosion. Low-temperature TPO, low-crystallinity POE, and co-extruded polyolefin films are therefore emerging as the principal development routes. Expansion of single-junction perovskite lines in China, perovskite-silicon tandem manufacturing in Europe, and flexible perovskite programs in Japan will move demand from laboratory sheets and pilot rolls toward wide-format, continuous, and stable commercial supply.

The principal market challenge is not simply achieving adhesion, but simultaneously delivering low-temperature processing, long-term moisture protection, optical stability, ion-migration control, and interface compatibility. Customer formulations, transparent electrodes, transport layers, and module structures vary significantly. The same encapsulant may therefore cause insufficient adhesion, interfacial reactions, edge moisture ingress, or efficiency degradation in different device architectures. Products generally require formulation screening, module prototyping, damp-heat testing, thermal cycling, ultraviolet aging, and outdoor reliability validation, resulting in lengthy qualification cycles, small initial orders, and high customization.

Future demand will develop across rigid glass modules, perovskite-silicon tandem modules, and flexible lightweight modules. Rigid modules prioritize low water-vapor transmission, low shrinkage, and glass adhesion. Tandem modules require lower lamination temperatures and tighter electrode compatibility, while flexible and building-integrated products require low modulus, bending resistance, and integrated barrier-adhesive structures. Procurement will gradually shift from individual films toward complete encapsulation systems combining encapsulants, edge seals, barrier frontsheets, and lead-containment materials.

This report is a detailed and comprehensive analysis for global Perovskite Encapsulation Film market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global Perovskite Encapsulation Film market size and forecasts, in consumption value (\$ Million), sales quantity (Sq m), and average selling prices (US\$/Sq m), 2021-2032

Global Perovskite Encapsulation Film market size and forecasts by region and country, in consumption value (\$ Million), sales quantity (Sq m), and average selling prices (US\$/Sq m), 2021-2032

Global Perovskite Encapsulation Film market size and forecasts, by Type and by Application, in consumption value (\$ Million), sales quantity (Sq m), and average selling prices (US\$/Sq m), 2021-2032

Global Perovskite Encapsulation Film market shares of main players, shipments in revenue (\$ Million), sales quantity (Sq m), and ASP (US\$/Sq m), 2021-2026

The Primary Objectives in This Report Are:

- To determine the size of the total market opportunity of global and key countries

- To assess the growth potential for Perovskite Encapsulation Film

- To forecast future growth in each product and end-use market

- To assess competitive factors affecting the marketplace

This report profiles key players in the global Perovskite Encapsulation Film market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Satinal S.p.A., The Compound Company B.V., Mitsui Chemicals, Inc., RenewSys India Pvt. Ltd., Vishakha Renewables Pvt. Ltd., 3M Company, Hangzhou First Applied Material Co., Ltd., Cybrid Technologies Inc., Betterial Film Technology Co., Ltd., Shanghai HIUV New Materials Co., Ltd., etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Market Segmentation

Perovskite Encapsulation Film market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Type, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type

EP Co-extrusion Series

Cross-linked Series

Thermoplastic Series

Other

Market segment by Lamination Temperature

?110°C

110°C-125°C

125°C-140°C

?140°C

Market segment by Film Thickness

?0.30mm

0.30mm-0.50mm

?0.50mm

Market segment by Application

Double-glass Photovoltaic Modules

N-type Photovoltaic Modules

Major players covered

Satinal S.p.A.

The Compound Company B.V.

Mitsui Chemicals, Inc.

RenewSys India Pvt. Ltd.

Vishakha Renewables Pvt. Ltd.

3M Company

Hangzhou First Applied Material Co., Ltd.

Cybrid Technologies Inc.

Betterial Film Technology Co., Ltd.

Shanghai HIUV New Materials Co., Ltd.

Guangzhou Lushan New Materials Co., Ltd.

Zhejiang Sinopont Technology Co., Ltd.

Jiangsu Sveck New Material Co., Ltd.

Lifecome Yushan Encapsulation Film Materials Co., Ltd.

Crown Advanced Material Co., Ltd.

Ningbo Exciton Technology Co., Ltd.

Tianyang New Materials Shanghai Technology Co., Ltd.

Market segment by region, regional analysis covers

North America (United States, Canada, and Mexico)

Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)

Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)

South America (Brazil, Argentina, Colombia, and Rest of South America)

Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

The content of the study subjects, includes a total of 15 chapters:

Chapter 1, to describe Perovskite Encapsulation Film product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of Perovskite Encapsulation Film, with price, sales quantity, revenue, and global market share of Perovskite Encapsulation Film from 2021 to 2026.

Chapter 3, the Perovskite Encapsulation Film competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the Perovskite Encapsulation Film breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Type and by Application, with sales market share and growth rate by Type, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026. and Perovskite Encapsulation Film market forecast, by regions, by Type, and by

Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of Perovskite Encapsulation Film.

Chapter 14 and 15, to describe Perovskite Encapsulation Film sales channel, distributors, customers, research findings and conclusion.

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