

Photovoltaics (PV) Films - Company Evaluation Report, 2025

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Report description:

The Photovoltaics (PV) Films Companies Quadrant is a comprehensive industry analysis that provides valuable insights into the global market for Photovoltaics (PV) Films. This quadrant offers a detailed evaluation of key market players, technological advancements, product innovations, and emerging trends shaping the industry. MarketsandMarkets 360 Quadrants evaluated over 100 companies, of which the Top 14 Photovoltaics (PV) Films Companies were categorized and recognized as quadrant leaders.

Photovoltaic (PV) films play a crucial role in the solar energy sector due to their protective properties, optical clarity, and long-term durability. These polymer-based materials are used to encapsulate and safeguard solar cells within PV modules, ensuring reliable performance while resisting moisture, UV radiation, and mechanical stress. Commonly manufactured using materials like Ethylene Vinyl Acetate (EVA), Polyolefin Elastomer (POE), and Polyvinyl Butyral (PVB), PV films are integral to the production of solar panels for both ground-mounted PV systems and building-integrated PV (BIPV) systems. The manufacturing process typically involves extrusion, lamination, and crosslinking to enhance mechanical strength, thermal stability, and light transmission. Growing adoption of renewable energy-particularly solar photovoltaics-is a primary factor fueling demand for PV encapsulation films. With increasing government support, subsidies, and clean energy goals, global deployment of solar systems has surged. Ground-mounted PV systems remain the most widely used due to their scalability, cost efficiency, and dominance in utility-scale projects. Simultaneously, BIPV is becoming more popular in urban settings where solar modules are integrated into building designs. Ongoing advancements in high-efficiency and bifacial solar modules, along with a global transition toward sustainable energy, continue to propel the PV films market. Opportunities are expanding with rising investment in solar technologies and continued innovation in film formulations. There is growing demand for encapsulants offering enhanced UV resistance, durability, and recyclability, as manufacturers seek to reduce the Levelized Cost of Electricity (LCOE) and extend the operational life of modules. The Asia-Pacific region, particularly China, India, and Japan, leads the market due to widespread solar adoption, robust manufacturing infrastructure, and favorable policy frameworks. Additionally, intensified research into recyclable and eco-friendly encapsulants presents strong growth potential for material developers.

Photovoltaic (PV) films are advanced polymer materials designed to protect and enhance the performance of PV modules by forming a durable barrier around solar cells. These films are typically composed of ethylene vinyl acetate (EVA), polyolefin elastomer (POE), thermoplastic polyolefin (TPO), and other innovative materials that provide excellent optical clarity, strong adhesion, UV resistance, and mechanical durability. PV encapsulation films are essential in preserving the structural integrity of solar modules, increasing light transmission, and shielding cells from environmental threats such as moisture, heat, dust, and

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ultraviolet radiation. By preventing issues like delamination, corrosion, and thermal degradation, these films significantly improve module efficiency and lifespan. The market for PV films continues to grow, driven by the rising global demand for renewable energy, improvements in solar panel design, and a strong focus on energy efficiency and sustainability. Progress in multi-layer and UV-stable film technologies, as well as efforts to reduce material costs and enhance recyclability, further supports market expansion.

The 360 Quadrant maps the Photovoltaics (PV) Films companies based on criteria such as revenue, geographic presence, growth strategies, investments, and sales strategies for the market presence of the Photovoltaics (PV) Films quadrant. The top criteria for product footprint evaluation included By RAW MATERIAL (Ethylene Vinyl Acetate (EVA), Polyvinyl Butyral (PVB), Polyolefin Elastomer (POE), Other Raw Materials), and By APPLICATION (Ground-Mounted PV, Building-Integrated PV).

Key players in the Photovoltaics (PV) Films market include major global corporations and specialized innovators such as H.B Fuller Company, 3M, Hanwha Group, HANGZHOU FIRST APPLIED MATERIAL CO.,LTD., Guangzhou Lushan New Materials Co., Ltd., Shanghai HIUV New Materials Co., Ltd., Jiangsu Sveck Photovoltaic New Material Co.,Ltd., Betterial, Borealis GmbH, KURARAY CO., LTD., JA SOLAR Technology Co.Ltd., Zhejiang Sinopont Technology Co., Ltd., Cybrid Technologies Inc., and Mitsui Chemicals, Inc.. These companies are actively investing in research and development, forming strategic partnerships, and engaging in collaborative initiatives to drive innovation, expand their global footprint, and maintain a competitive edge in this rapidly evolving market.

Top 3 Companies

3M

3M stands out for its commitment to product stewardship and innovation. Known for fostering impactful partnerships and executing transformative projects, 3M has a strong market presence across various regions, including Asia Pacific, Europe, and North America. The company has demonstrated remarkable innovation, averaging 3,500 patents annually over recent years. This dedication underscores 3M's role in advancing solar technology and maintaining a competitive edge in the PV films market through continuous investment in research and development.

HANGZHOU FIRST APPLIED MATERIAL CO., LTD.

As a leader in the Chinese market, Hangzhou First Applied Material Co., Ltd. focuses on photovoltaic packaging materials, with production facilities in China, Vietnam, and Thailand. Its strategic expansion involves a USD 270 million investment to build new production facilities, enhancing its capacity to meet the growing demand for solar energy solutions. Their focus on developing encapsulation films and backsheets demonstrates their pivotal role in supporting solar panel efficiency and durability.

Mitsui Chemicals, Inc.

Mitsui Chemicals has established a substantial presence in the PV films market through strategic expansions and digital transformation initiatives. Their new polyolefin elastomer plant in Singapore enhances capacity significantly, highlighting their investment in high-performance materials vital for solar module production. Operating globally, Mitsui Chemicals thrives by integrating cutting-edge technologies with sustainability-focused solutions.

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