For more than a decade, 3M has been a trusted supplier of advanced materials for the solar industry. Our broad range of products and technologies is designed to enhance performance, improve reliability and drive down the critical cost per watt. As one of the world’s leading suppliers of advanced films, tapes, coatings and adhesives, we have the ability to supply products and provide technical support around the world.
3M™ Scotchshield™ Film Backsheets

Moisture, heat and UV rays can seriously damage photovoltaic modules. 3M™ Scotchshield™ Film backsheet are uniquely engineered for maximum protection. Featuring 3M’s innovative fluoropolymer technology and backed by years of proven, real world performance, 3M™ Scotchshield™ Film backsheet deliver outstanding moisture protection, heat resistance and UV stability. The low moisture vapor transmission rate allows for excellent retention of interlayer adhesion after environmental aging.

Made with a unique solvent-free manufacturing process, 3M™ Scotchshield™ Film backsheet feature a durable outer layer of THV fluoropolymer bonded to PET. Then an extra layer of EVA provides exceptional compatibility with encapsulants for strong, durable bonds. The outer surface is treated to facilitate the use of a broad range of adhesives, tapes and labels.

3M™ Cool Mirror Film 330

3M™ Cool Mirror Film 330 is a polymeric multilayer mirror. It’s designed for near IR reflectance at normal incidence with an average reflectance of 89% or greater, and it reflects light specifically in the c-Si response range with a nominal reflection band (700-1250nm). A non-leaded product with non-blinding reflection, it is suitable for rooftop applications. When integrated as a reflector in a non-tracking low concentrated photovoltaic system, 3M™ Cool Mirror Film 330 enables up to 40% higher output compared to a typical installation.*

*Output improvement varies depending on latitude of installation location, time of year, module tilt and mirror tilt.
3M™ EPE Films
Primarily used for dielectric applications, 3M™ EPE Films can also be used for cosmetic masking of bus wires and connections. 3M™ EPE Films are compatible with encapsulants and available in multiple colors and constructions to meet a broad range of applications.

3M™ Solar Encapsulant Film EVA9000
3M™ Solar Encapsulant Film EVA9000 is a fast cure encapsulant designed to work with PV modules. It protects against UV damage and weathering, while allowing the maximum amount of visible light transmission to solar cells. Conformable and flexible film is easy to laminate and features a low shrinkage rate. It provides a durable bond with both glass and backsheet. Cross-linked EVA9000 film has excellent visible light transparency, strong adhesion and elasticity properties required for solar cell encapsulation, plus decades of protection against UV aging, discoloration and weathering.

3M™ Solar Acrylic Foam Tape
For over 30 years industries worldwide have been using 3M™ Solar Acrylic Foam Tape technology to permanently bond and attach many substrates. The acrylic-based chemistry makes it ideal for critical applications that demand durability, including automotive, electronics, signage, glazing and construction market.

Frame Bonding
3M™ Solar Acrylic Foam Tapes can provide durable attachment solutions for solar module frames. The immediate holding feature allows for high throughput during manufacturing. Compared to sealants, there is no need to clean off any excess material, resulting in less labor and a more professional look. With field experience in millions of solar panels around the world, 3M™ Solar Acrylic Foam Tape is a time-tested solution for frame bonding. 3M™ Solar Acrylic Foam Tapes are all UL certified.

Junction Box Bonding
3M™ Solar Acrylic Foam Tape technology enables rapid attachment of junction boxes to solar modules. The easy, no-mess application allows for faster fabrication and can result in a cleaner look, compared to liquid adhesives and mastics. 3M™ Solar Acrylic Foam Tapes are all UL certified.

3M™ Dielectric Tapes
3M™ Dielectric Tapes are excellent high temperature tapes for crystalline silicon (c-Si) and thin film solar applications. Available in a wide variety of widths, they’re reliable electric insulators with low outgassing adhesive and can be applied automatically to maximize productivity.

3M™ Specialty Tapes
3M provides a wide range of tapes designed specifically for use in PV modules. These durable tapes ensure reliable, long-term application for everything from cosmetic masking to cell positioning.
**3M™ EPE Films**

Primarily used for dielectric applications, 3M™ EPE Films can also be used for cosmetic masking of bus wires and connections. 3M™ EPE Films are compatible with encapsulants and available in multiple colors and constructions to meet a wide range of applications.

**3M™ Ultra Barrier Solar Film**

Transparent 3M™ Ultra Barrier Solar Film to replace glass—enabling high efficiency lightweight, flexible, photovoltaic (PV) modules.

Designed to address the needs of flexible thin film solar manufacturers, 3M™ Ultra Barrier Solar Film acts as a replacement for glass with its high light transmission, superb moisture barrier performance and excellent weatherability. 3M™ Ultra Barrier Solar Film is a multi-layered film made from a 3M proprietary roll to roll vacuum coating process. 3M has combined its knowledge of polymer films, nano technology adhesives and advanced materials to deliver a high-performing front sheet barrier film for the solar industry. 3M™ Ultra Barrier Solar Film is a UL certified component.
3M™ Solar Encapsulant Film EVA9000

3M™ Solar Encapsulant Film EVA9000 is a fast cure encapsulant designed to work with PV modules to protect against UV damage and weathering while ensuring maximum amount of visible light transmission to solar cells. It is conformable and flexible for ease of lamination with a low shrinkage rate and provides a durable bond with both glass and backsheets. Cross-linked EVA9000 film has excellent visible light transparency, strong adhesion and elasticity properties required for solar cell encapsulation and decades of protection against UV-aging, discoloration and weathering.

3M™ Dielectric Tapes

3M™ Dielectric Tapes are excellent high temperature tapes for crystalline silicon (c-Si) and thin film solar applications. Available in a wide variety of widths, they’re reliable electric insulators with low outgassing adhesive and can be applied automatically to allow for rapid application to maximize productivity.

3M™ Solar Acrylic Foam Tape

For over 30 industries worldwide have been using 3M™ Solar Acrylic Foam Tape technology to permanently bond and attach many substrates. The acrylic-based chemistry makes it ideal for critical applications that demand durability, including automotive, electronics, signage, glazing and construction market.

Junction Box Bonding

3M™ Solar Acrylic Foam Tape technology enables rapid attachment of junction boxes to solar modules. The easy, no-mess application allows for faster fabrication and can result in a cleaner look, compared to liquid adhesives and mastics. 3M™ Solar Acrylic Foam Tapes are all UL certified.

Rail Bonding

3M™ Solar Acrylic Foam Tapes are also available in thicker product constructions to provide an easy, no-mess application when bonding rails to solar modules. 3M™ Solar Acrylic Foam Tapes are all UL certified.

3M™ Charge-Collection and Bus Tapes

The tin-plated, deadsoft copper foil tapes with a low outgassing pressure-sensitive adhesive or used in applications requiring excellent electrical conductivity from the substrate through the foil backing. The tin plating facilitates soldering to the backing and resists oxidation and corrosion. Suitable for standard thin film laminating temperatures, these tapes are available in a wide range of configurations for applications as charge collectors or buses within thin film solar panels.
3M™ Solar Mirror Film 1100

3M™ Solar Mirror Film 1100 is a silver metalized reflective film that has been specifically designed for Concentrating Solar Power (CSP), Concentrating Photovoltaic (CPV) and solar thermal installations. 3M™ Solar Mirror Film 1100 offers many advantages over traditional glass mirrors, including higher reflectance, less weight and improved mechanical properties. These features will increase the output of the Concentrated Solar System and provide greater design flexibility. Additionally, 3M™ Solar Mirror Film 1100 has adhesive on the back for easy application.

Data collected by 3M in production scale parabolic and heliostat reflectors since 1995, and from weathering samples since the 1980s, prove that our mirror films are highly weatherable and maintain reflectance stability.

3M™ Anti-Soiling Liquid

Photovoltaic (PV) modules installed in most outdoor locations accumulate soil on their sun-facing surface, which reduces light transmission to the PV cells, thereby reducing power output. 3M™ Anti-Soiling Liquid is specifically designed as a field applied coating that provides resistance to dry dust soiling. It is an easy to apply water based liquid suitable for arid, dusty environments.
Large Aperture Trough (LAT) 73

Large Aperture Trough (LAT) 73, engineered by Gossamer Space Frames and 3M, sets a new benchmark in solar collector technology for the CSP industry. Through advancements in materials technology, state of the art engineering, and superior design, the LAT 73 offers a step change in performance and reduced cost. LAT 73 uses 3M™ Solar Mirror Film 1100 as a reflective surface and a frame support structure custom designed by Gossamer. The result is an easy to assemble parabolic trough collector with the largest working aperture and the highest geometric concentration ratio in the world today.

LAT 73 leads the industry in optical performance. Technical features include:

• Highly reflective Solar Mirror Film 1100, with a 94.5% solar weighted hemispherical reflectance and 95.5% specular reflectance (25 mradian acceptance angle)

• High accuracy reflective panel constructions, with less than 1.5 mradian RMS slope error

• Integration with space frame that results in intercept factors exceeding 98% at a concentration ratio of 103
3M Renewable Energy Division: Unmatched Capabilities

3M’s commitment to the renewable energy industry includes a global organization of research and development, sales, marketing, manufacturing, and technical service—all dedicated to developing reliable materials that reduce costs and improve performance.

Expertise

Founded in 1902, 3M has extensive experience developing durable materials for outdoor applications in transportation, commercial graphics and optics. This includes world-class facilities for simulated and real-time weathering exposure and testing.

Innovation

At 3M, the innovation is never-ending. Whether the free-flow of ideas and solutions is occurring among our people, our technologies, our industries or the geographies where we operate, the human and technological connections within 3M enable infinite combinations and applications of expertise as ideas multiply and solutions expand.

Collaborate with 3M

3M innovation is fundamentally about solving problems. We extend an open invitation to access our experts—present your challenges so we can work together to develop answers and solutions and put 3M’s technology to work for you.

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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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