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EPE Isolation Film for Photovoltaic Modules

This catalog introduces an EPE isolation film from CNCGLASS. The web is built as a three-layer stack: an EVA skin, a POE core, and a second EVA skin. In a photovoltaic module the film can be used to isolate the busbars, providing insulation and helping to stop a short circuit from forming at the busbars while the module is in service.

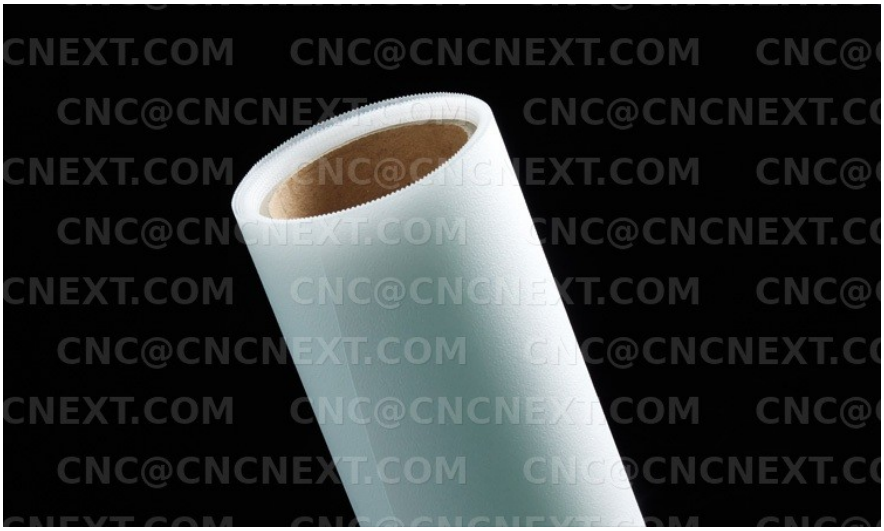


Figure 1. EPE isolation film on a cardboard core.

1. How the Three Layers Work

Each outer skin is a photovoltaic-grade EVA resin blended with ultraviolet stabilizers, anti-aging additives, and related agents so that the surface weathers well in outdoor use. The POE core is there to give the web its mechanical strength and its electrical performance. Together the three layers bond firmly to EVA encapsulant film, lie flat in the laminator without wrinkling, resist ultraviolet light, and withstand dielectric breakdown.

2. Typical Properties

Property	Value
Thickness	0.3–1.0 mm
Width	Up to 1,400 mm
Roll length	150–350 m
Areal-density tolerance	± 4 %
Grammage	≥ 300 g/m³
Tensile strength	≥ 100 MPa
Elongation	≥ 110 %
Water absorption (20 °C, 24 h)	≤ 5.0
Peel strength to glass	≥ 60 N/cm
Peel strength to PET	≥ 40 N/cm
Shrinkage, machine direction (MD)	≤ 2.0 %
Shrinkage, transverse direction (TD)	≤ 1.5 %

Volume resistivity	≥ 1 × 10^{15} Ω·cm
Dielectric breakdown strength	≥ 26 kV/mm
UV aging, ΔYI (120 kWh/m², 1,000 h)	≤ 4
Damp-heat aging, ΔYI (85 °C / 85 % RH, 1,000 h)	≤ 4

3. Lamination Guidance

The cycles below are a starting point for a single-chamber laminator and for a two-chamber laminator. Temperature and times may be adjusted to the machine in use, provided crosslinking remains inside the accepted range. Other materials in the stack should already have passed inspection by a recognized testing body for this industry.

Single-chamber cycle

Item	Typical setting
Laminating temperature	145 ± 2 °C
Vacuum time	360 ± 30 s
Hold pressure, three stages	−75 / −45 / −20
Hold time	660–720 s

Two-chamber cycle

Item	Typical setting
First chamber temperature	120 ± 2 °C
First chamber vacuum time	360 ± 30 s
First chamber hold pressure, three stages	−70 / −50 / −20
First chamber hold time	180 ± 30 s
Second chamber temperature	145 ± 2 °C
Second chamber vacuum time	30 ± 10 s
Second chamber hold pressure, three stages	−70 / −50 / −30
Second chamber hold time	480 ± 30 s

4. Storage and Handling

Keep the rolls in a cool, dry room at a steady climate, not above 30 °C and not above 60 % relative humidity. Storage life is six months; use within three months is preferred. The rolls are vacuum packed, and the usual inner pack length is 150–350 m per roll unless a different length is agreed. For long-term storage, stack no more than four layers, to avoid bending or crushing. Do not allow the film to become damp. After a pack is opened, or after the film is cut, it is best to use it within 48 hours. Keep the module line free of unwanted static so that lamination is not disturbed.

Commercial Notes

Please contact CNC@CNCNEXT.COM for pricing, widths and thicknesses, and packing details for this EPE isolation film.

Contact Us

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We will be glad to advise on this EPE isolation film for busbar insulation in photovoltaic modules.