

CNCGLASS

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TECHNICAL NOTE

Three Terminologies of Glass-Laminating EVA Interlayer Film

By Peter Lin

CNCGLASS · 1. Purpose and Scope

This technical note explains three terms that frequently appear in discussion of CNCGLASS glass-laminating EVA (ethylene-vinyl acetate) interlayer film: cross-linking, coupling, and polymer mixing (compounding). It converts a short promotional slide deck into formal B2B language for glass processors, project buyers, and technical sales teams. Product-specific cure, adhesion, and formulation claims on the current CNCGLASS Technical Data Sheet (TDS) and lot test reports always prevail over this overview.

In laminated safety glass, these three ideas work together: compounding builds the film; coupling promotes glass↔EVA adhesion; cross-linking turns the interlayer into a heat-stable thermoset network during vacuum-oven or autoclave lamination.

CNCGLASS · 2. Cross-linking (Cross-links Reaction)

Simply put (source retained): cross-linking supports tensile strength, impact resistance, penetration resistance, and the thermoset character of glass-laminating EVA interlayer.

In laminated-glass practice, peroxide initiators in the EVA formulation create covalent bridges between polymer chains during vacuum-oven / autoclave heat cycles. The result is a thermoset network with improved heat resistance, cohesive strength, and post-breakage / impact behavior versus an uncured thermoplastic state. Cross-links are bonds that link one polymer chain to another (typically covalent in this peroxide-cured EVA context).

Gel content (Soxhlet extraction) is a common industrial cure indicator. Architectural / PV EVA literature often cites a typical industry target on the order of about ≥75–80% gel for adequate cure — treat this only as background industry context, not as a CNCGLASS specification. Always follow the CNCGLASS TDS and lot test method for any contractual gel / cure requirement.

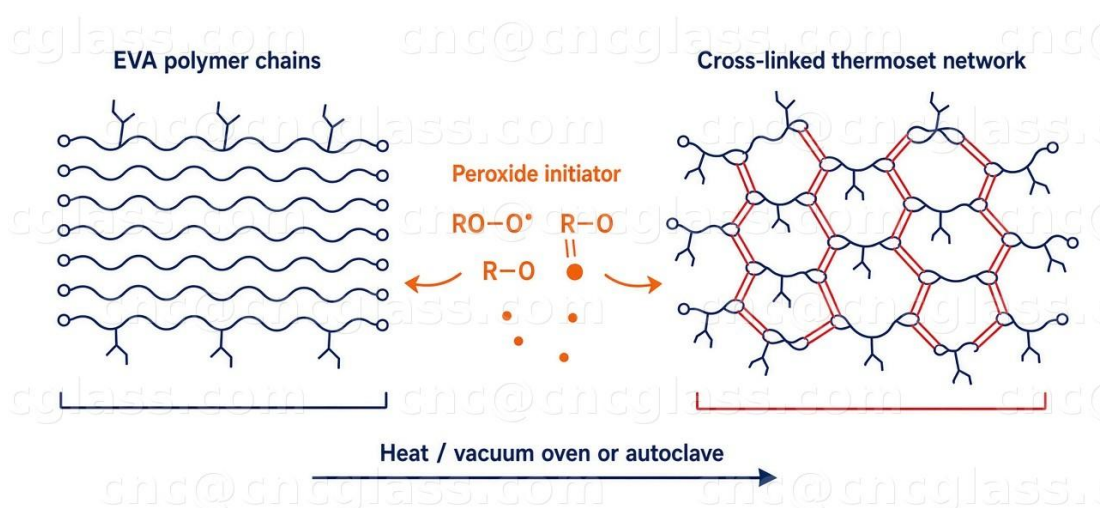


Figure 1 — Cross-linking principle: EVA polymer chains → peroxide initiator (heat / vacuum oven or autoclave) → thermoset network (schematic).

CNCGLASS · 3. Coupling (Silane Adhesion Promotion)

Simply put (source retained): coupling relates to adhesive strength between the glass surface and the EVA film.

In EVA interlayer film for laminated glass, “coupling” means organosilane coupling / adhesion promotion — not metal-catalyzed organic C–C coupling chemistry. A silane coupling agent typically presents: (1) a hydrolyzable end that bonds covalently to glass surface silanols (Si–OH); and (2) an organic end that entangles with and/or reacts into the EVA matrix. This dual bridge helps explain outdoor moisture-resistant adhesion of well-formulated EVA systems relative to adhesion modes that rely mainly on hydrogen bonding (as often discussed for PVB).

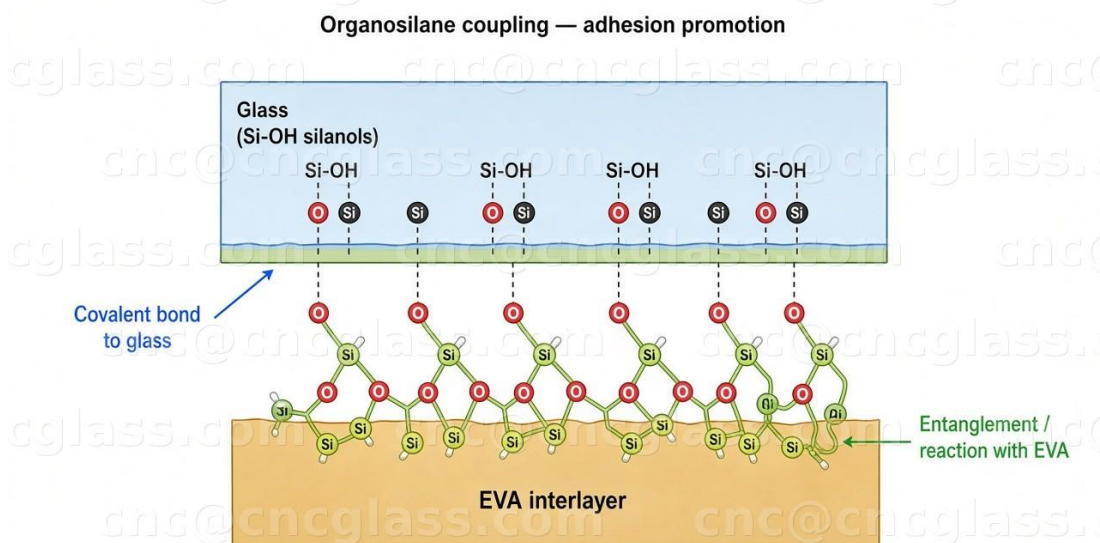


Figure 2 — Organosilane coupling: Glass (Si–OH) — silane bridge — EVA interlayer adhesion promotion (schematic).

CNCGLASS · 4. Polymer Mixing / Compounding

Simply put (source retained): polymer mixing is the procedure of producing glass-laminating EVA interlayer film.

In factory language this is melt compounding: EVA resin is blended with functional additives — typically including peroxide cross-linker, silane coupling agent, UV stabilizers, antioxidants, and optional colorants — then cast or extruded into film and wound into rolls. Mixing builds processability and the property set required for lamination (cure response, adhesion promotion, weathering resistance, and optical appearance). Exact recipes and phr loadings are proprietary; this note describes categories only.

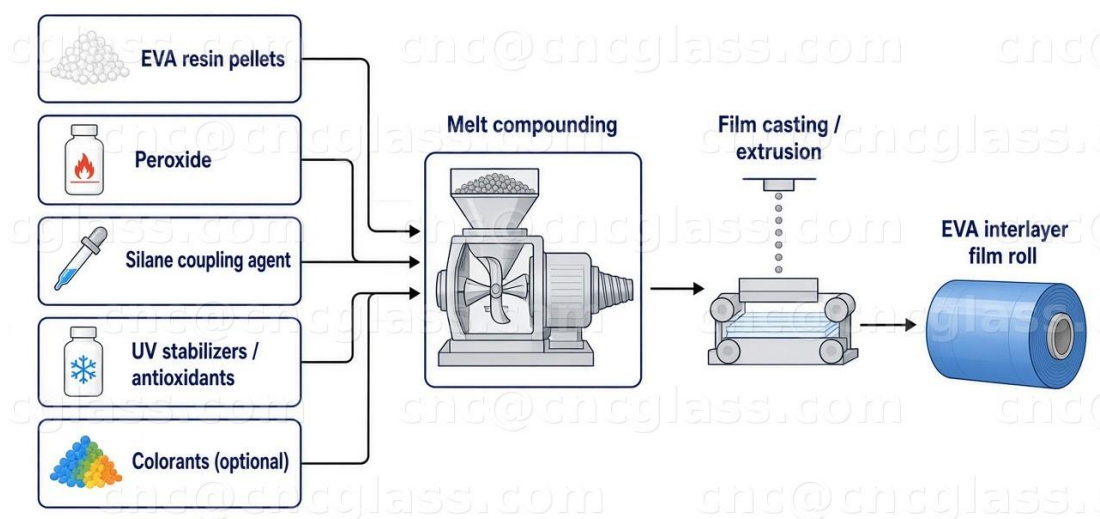


Figure 3 — Polymer mixing / compounding: EVA resin + additives → melt compounding → film casting / extrusion → interlayer film roll (process flowchart).

CNCGLASS · 5. How the Three Work Together in Lamination

At the film plant, polymer mixing / compounding incorporates peroxide, silane, and stabilizers into a processable EVA film. At the glass plant, vacuum bagging / oven or autoclave heat activates peroxide cross-linking (thermoset network) while the silane coupling system promotes durable glass↔EVA adhesion. Together they deliver the mechanical integrity, heat resistance, and interfacial bond expected from architectural laminated glass.

- Compounding → film that can cure and adhere as designed.
- Coupling (silane) → moisture-resistant glass↔EVA interface.
- Cross-linking → thermoset cohesive strength and heat stability.
- Always validate cure and adhesion with the CNCGLASS TDS and incoming / process QC — not with slide-deck wording alone.

Factory roll, crate, and container photographs in the source deck are commercial illustrations. They are not required to explain these three terminologies and are not reproduced here.



Figure 4 — Application: architectural laminated-glass façade / interior partition glazing.

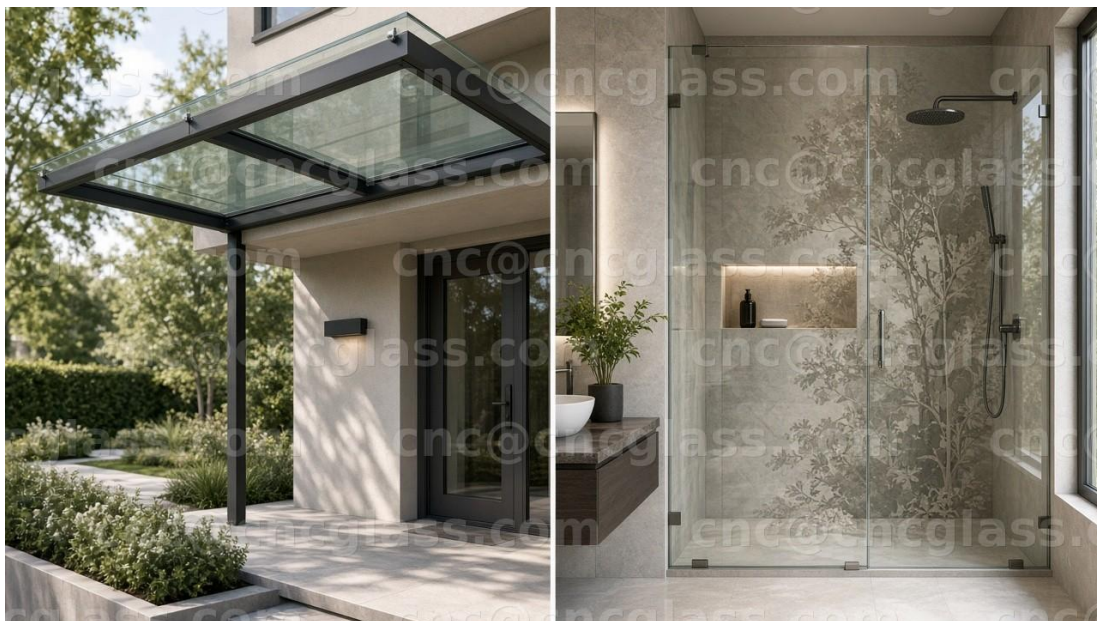


Figure 5 — Application: outdoor laminated canopy and decorative / shower laminated glass.

This overview may be updated when CNCGLASS products or guidance change. For contractual performance, follow the current CNCGLASS TDS and lot documentation, or contact the team below.

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