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TECHNICAL NOTE

Adhesive Strength Between EVA Glass Interlayer Film and Glass Surface

By Peter Lin

This technical note explains why adhesive strength between EVA glass interlayer film and the glass surface matters for laminated-glass safety and delamination resistance, and summarizes five practical factors that influence that adhesion. It is written for laminated-glass fabricators, process engineers, and project buyers specifying EVA interlayer film.

CNCGLASS · Why Adhesive Strength Matters

The adhesive strength of EVA glass interlayer film is very important for laminated glass. The adhesion will affect the safety of laminated glass and the delamination of laminated glass. Adequate glass–EVA peel and interfacial bonding help the laminate retain glass fragments after impact and resist edge or face delamination in service. Weak adhesion increases the risk of bubbles, edge lift, or progressive delamination when moisture, heat, or mechanical stress act on the interface.

The following factors influence the adhesion of EVA glass interlayer film to glass:



Fig. 1 — Peel / adhesion test close-up (EVA film–glass interface).



Fig. 2 — Interlayer film testing laboratory (tensile / peel setup).

CNCGLASS · Five Factors That Influence EVA–Glass Adhesion

1. Type of EVA glass interlayer film

Generally speaking, super-transparent EVA glass interlayer film is stronger in adhesion than normal transparent EVA glass interlayer film. Outdoor-type EVA glass interlayer film is stronger in adhesion than indoor decoration-type EVA glass interlayer film. Adhesion also depends on formulation: vinyl acetate (VA) content, silane adhesion promoters, and the cure / crosslinking system all influence how well the film couples to glass. Select the film grade for the intended indoor or outdoor duty rather than assuming all “clear” EVA grades bond the same.

2. Manufacturer of the EVA glass interlayer film

Different EVA glass interlayer film manufacturers use different formulas for producing EVA glass interlayer film, so adhesion performance will differ. Fabricators should use a film grade matched to the application and follow the supplier’s process window (temperature, vacuum, hold time, and cooling). Do not mix process recipes across brands without validation on the same glass and equipment.

3. Heating temperature and time during lamination

When laminating EVA glass interlayer film, heating temperature and holding time affect the crosslinking reaction and coupling reaction, which determine the adhesive strength of the EVA glass interlayer film. Sufficient cure (gel content / crosslinking) within the supplier's recommended temperature range matters for durable peel. Public lamination studies on crosslinking EVA encapsulants show that process temperature and thermal history influence glass-encapsulant peel and gel content; higher lamination temperature within a validated window often helps peel retention after damp-heat aging. Do not invent a single °C or peel value for all CNC grades—use the supplier process window for the film on hand.

4. Heating time must be long enough for crosslinking and coupling to complete

The heating time must be long enough for the crosslinking reaction and coupling reaction to be fulfilled completely. Short or uneven hold times can leave the interlayer under-cured at the glass interface, reducing adhesive strength even when peak temperature looks correct. Confirm hold time against laminate thickness, load size, and the supplier cycle; validate with gel-content or peel checks when changing equipment or glass build-up.

5. Storage of the EVA glass interlayer film

If you open the package of the EVA glass interlayer film, do not finish the roll, and leave it unrepacked, the remaining film may absorb moisture, which will harm adhesion strength. Store opened film sealed, cool, and dry per supplier guidance. Moisture at the glass-film interface can temporarily weaken peel; damp-heat literature on EVA/glass systems reports recoverable or progressive peel loss depending on exposure and formulation.

If the EVA glass interlayer film is expired (beyond the shelf life), the adhesion of EVA glass interlayer film may decline. Follow the supplier shelf life; do not assume months beyond the stated period without the manufacturer's written guidance.

Please repack unfinished rolls well to avoid dust and moisture. Make sure you use the EVA glass interlayer film within the shelf life, store it in good condition, and follow the "first in, first out" (FIFO) rule of storage. Industry handling practice: keep rolls sealed away from moisture and dust, maintain a clean lay-up environment, and rotate stock so older lots are laminated first.

In practice, treat adhesive strength as the combined result of film grade, supplier formula, validated lamination temperature and hold time, and dry sealed storage—not as a single catalogue number. For project-specific process windows or peel-test methods, contact CNCGLASS using the details below. This note does not replace supplier data sheets, in-plant process validation, or local building-code compliance.

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