

CNCGLASS

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TECHNICAL NOTE

Bubbles of Ethylene Vinyl Acetate EVA Film Laminated Glass

Seven Common Process Reasons

By Peter Lin

Bubbles in EVA-film laminated glass are usually process-related rather than a simple film-quality fault. The seven reasons below cover glass flatness, incomplete melt/cure, vacuum timing and bag integrity, moisture, local overheating, and edging heat—practical checks for laminated-glass fabricators.

CNCGLASS · Seven Reasons for Bubbles in EVA Film Laminated Glass

Reason 1. Poor glass flatness (plainness)

The plainness (flatness) of the glass is not good. If you are making tempered laminated glass, make sure the thickness of the Ethylene Vinyl Acetate (EVA) film is thick enough.

Temper roller-wave and bow leave local gaps that a thin interlayer may not fill. Industry practice often uses EVA of ≥ 0.76 mm for tempered laminated glass when filling roller-wave; confirm the grade and stack with your film supplier and process trials.

Reason 2. EVA film not fully melted / cured

The Ethylene Vinyl Acetate (EVA) film is not melted completely when processing in the laminating vacuum oven. Increase the temperature or prolong the heating time to make sure the EVA film is melted completely.

Follow the supplier's published temperature–time window for the specific grade until the film is fully melted and cured. Incomplete melt leaves voids that appear as bubbles or haze after cooling.

Reason 3. Vacuum stopped too early

Stop vacuuming too early. Keep vacuum working throughout the whole procedure of making laminated glass, and only stop vacuuming after the temperature is lower than 45°C .

Releasing vacuum while the laminate is still hot can allow residual gas or bag rebound to open voids at the edges or across the pane. Hold vacuum until the glass has cooled below the stated threshold.

Reason 4. Silicone vacuum bag leaking

The silicone bag is leaking, so the vacuuming pressure cannot reach 0.095 MPa. Please replace the silicone vacuum bag.

Inspect bag seams, valve fittings, and silicone tubing regularly. A bag that cannot hold the target vacuum will leave trapped air and edge or field bubbles after lamination.

Reason 5. Excess moisture on glass, EVA, or decorative inserts

Moisture on the surface of the glass, Ethylene Vinyl Acetate (EVA) film, or decorative interlayers is too high. Please dry them before laminating.

Surface water and absorbed humidity flash to vapor during heat-up and form bubbles. Keep glass dry, re-seal unused EVA promptly, and dry decorative inserts (fabric, paper, metal mesh, etc.) before assembly.

Reason 6. Local overheating — EVA decomposes to gas

Part of the laminated glass is exposed to too high a temperature, which causes the Ethylene Vinyl Acetate (EVA) film to decompose to gas. Make sure heating is well distributed, and make sure the temperature detector is working correctly and reading the true temperature.

Hot spots near heating elements, uneven rack loading, or a faulty probe can push local temperature past the film's safe window. Verify oven uniformity and calibrate temperature sensors on a regular schedule.

Reason 7. Edging heat causes edge bubbles

When edging laminated glass, bubbles appear at the edges because edging generates heat, and too much heat causes bubbles. Please use more water to cool the laminated glass when edging, and edge slowly and softly if necessary.

Aggressive dry grinding or insufficient coolant can soften or disturb the interlayer at the edge. Prefer continuous water cooling, moderate feed rate, and light pressure on EVA laminates.

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For any other situation, or if you need process guidance on temperature, vacuum schedule, bag maintenance, moisture control, or edging of EVA laminated glass, please feel free to contact us.

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