

CNCGLASS

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TECHNICAL NOTE

How to Recycle Unsuccessful Laminated Glass with EVA Film

By Peter Lin

CNCGLASS · Purpose and Scope

This technical note describes two practical CNCGLASS workshop routes for recycling or remediating unsuccessful EVA film laminated glass: (A) an autoclave re-press attempt to squeeze out internal bubbles on outdoor architectural safety clear EVA laminates; and (B) chemical degumming with acetone and banana oil (isoamyl acetate) to separate the EVA film and reclaim the glass panes.

CNCGLASS EVA film is normally laminated in a vacuum oven. Autoclave re-press here is a remediation attempt on already-laminated panels with bubble defects — not the standard first-pass process. Success is not guaranteed. Suitability depends on glass type, edge condition, bubble location, and autoclave parameters. Fully sealed internal bubbles, haze, or delamination often cannot be repaired by re-press alone.

This note is different from mechanical opening / delamination of failed EVA laminates. Here the focus is bubble remediation where feasible, and solvent-assisted degumming for glass reclaim when remediation fails.

CNCGLASS · Remediation Routes at a Glance

Route	When to consider	Expected outcome
A. Autoclave re-press	Outdoor clear safety EVA laminate with internal bubbles; try before scrap	Possible optical recovery — no guarantee; inspect pass/fail
B. Chemical degum	Already laminated but unsuccessful; need to separate EVA and reclaim glass	Glass reclaim after pilot test, PPE, and legal waste disposal

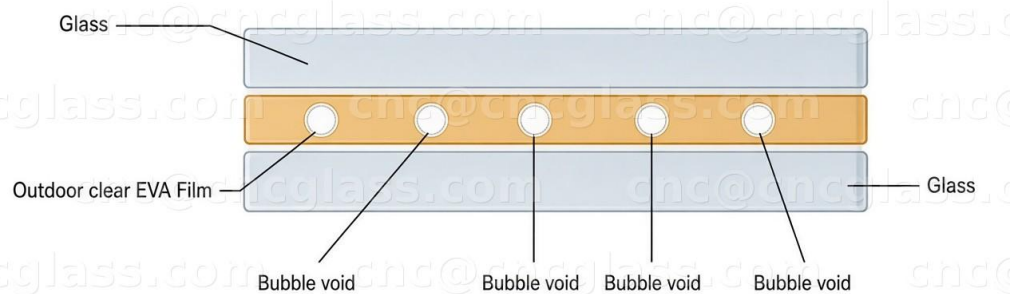
CNCGLASS · A. Bubble Remediation via Autoclave (Outdoor Clear Safety EVA)

For laminated glass made with outdoor safety architectural super-transparent EVA film that shows bubbles inside the laminate, you may try placing the panel into an autoclave to squeeze the bubbles out.

There is no guarantee of success every time. At least, it is worth trying before discarding the panel — provided the glass, edge seal, and autoclave cycle are suitable for a controlled re-press attempt.

Industry practice for laminated-glass bubble rework is cautious: sealed internal bubbles away from the edge, milky haze, or adhesion failure are often not reliably repairable by re-autoclaving. Edge-connected residual air may sometimes respond to controlled pressure/heat completion; locked-in voids after full cross-link may not. Treat autoclave re-press as a conditional remediation attempt, then inspect optically and for adhesion before any delivery decision.

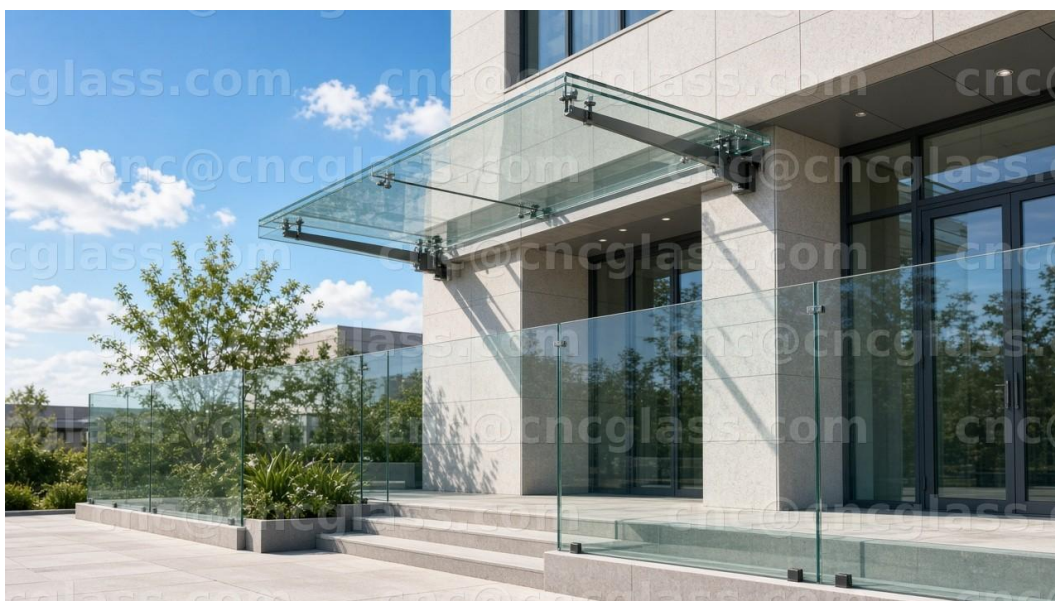
- Confirm glass type (annealed / tempered / heat-strengthened) and that the panel can safely enter the autoclave cycle available in your plant.
- Record bubble map (edge-connected vs sealed internal) before and after the attempt.
- After re-press: inspect for remaining voids, haze, edge delamination, and optical clarity. Pass only if optics and adhesion meet your workshop QC; otherwise scrap or move to degum reclaim.



Problem schematic (cross-section): Glass → Outdoor clear EVA Film → Glass with annotated bubble voids trapped in the interlayer.



Remediation path: unsuccessful laminate with bubbles → autoclave re-press attempt → inspect → Pass (optical OK) or Fail (scrap or degum).



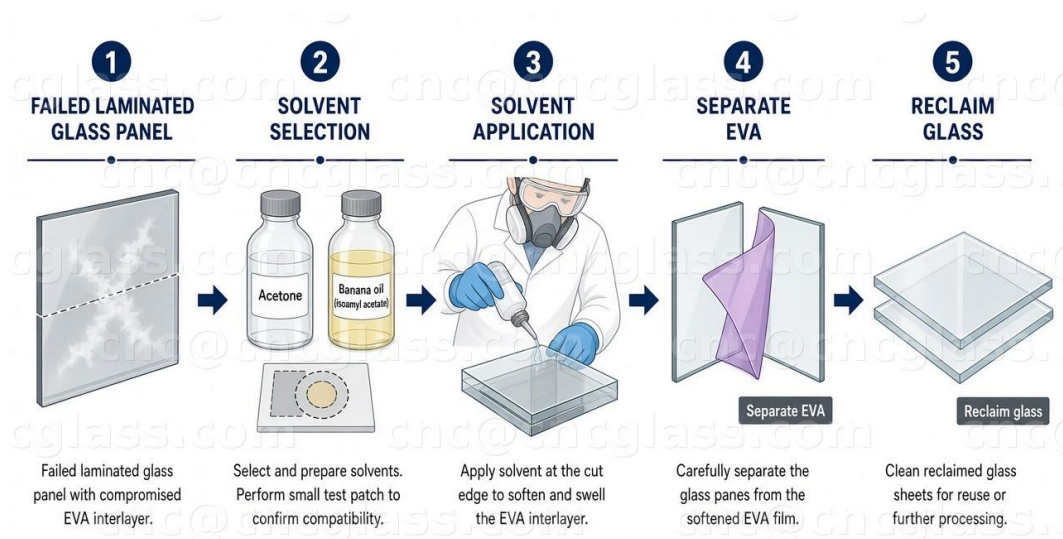
Application — outdoor architectural safety laminated glass: railing and canopy where optical clarity of outdoor clear EVA quality matters.

If you need to break away (degum) the EVA film from glass that is already laminated but unsuccessful, acetone and banana oil can be used to assist separation of the interlayer from the glass.

Banana oil in this workshop context means isoamyl acetate (isopentyl acetate / 3-methylbutyl acetate; CAS 123-92-2), or flavoring mixtures based on it. Acetone is commonly used to wipe residual EVA smear from glass surfaces. Acetate-family and related organic solvents appear in published EVA encapsulant delamination / reclaim literature; CNC's use of acetone + banana oil for architectural laminated-glass scrap is practical workshop guidance — always confirm on a small pilot piece of the same film and glass.

Workshop practice (CNC guidance):

- Take a small test first on a scrap edge or coupon of the same unsuccessful laminate before treating a full panel.
- Cut or open edges so solvent can reach the EVA interlayer; apply acetone and banana oil (isoamyl acetate) as needed to soften / weaken adhesion.
- When adhesion weakens, separate the panes and remove residual film; clean glass surfaces and inspect for coating etch, scratches, or edge damage before reuse.
- Reclaim glass only when fully cleaned and inspected. Do not claim 100% reclaim yield — some panes may still be scrap after degum.



Chemical degum path: failed laminate → acetone + banana oil (isoamyl acetate) with small pilot test and PPE → separate EVA → reclaim glass.



Workshop reclaim scene: cleaned clear glass sheets racked after degumming, ready for inspection and reuse.

Acetone and isoamyl acetate (banana oil) are flammable organic solvents with VOC exposure risk. Isoamyl acetate is Class IC flammable (flash point about 25 °C); occupational exposure guidance commonly cites TWA around 100 ppm. Use local exhaust ventilation, eye/skin protection, and suitable respiratory protection per your site HSE rules. Keep ignition sources away. Dispose of solvent-contaminated waste under local environmental regulations.

- Autoclave: follow equipment OEM limits; do not over-pressure or over-heat tempered or mismatched stacks beyond safe plant practice.
- Degum: pilot test first; solvents may etch low-E / coated glass or leave haze if residues are not fully cleaned.
- QC after reclaim: flatness, edge quality, residual film, optical clarity, and fitness for the intended reuse path (re-laminate vs scrap).

CNCGLASS · Limitations

- Autoclave re-press does not guarantee bubble removal on every unsuccessful outdoor clear EVA laminate.
- Chemical degumming is for scrap reclaim — not a finishing step for customer-delivered glass.
- Reclaim yield is not 100%. Some glass will still be scrap after remediation or degum.
- Prevention remains best: vacuum-oven process control, clean glass, correct film grade, and small-sample trials before mass production.

If you have further questions about recycling unsuccessful EVA film laminated glass, please feel free to contact us.

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