

CNCGLASS

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TECHNICAL NOTE

How to Clean Glass Surface to Make EVA Interlayer Laminated Glass Successfully

By Peter Lin

Clean, dry glass is a foundation step for successful EVA interlayer lamination. Residual dirt, oil, cutting debris, or anti-mildew powder on the glass surface can trap air or moisture at the glass–film interface and raise the risk of bubbles and later delamination. This technical note summarizes practical cleaning methods used by laminated-glass fabricators before EVA lay-up, including ratios retained from shop practice.

CNCGLASS · 1. Why Cleaning the Glass Surface Matters

It is very important to clean the glass surface before laminating with **ethylene vinyl acetate (EVA)** interlayer film. If the glass surface is not clean enough, residual contamination may cause **bubbles** and **delamination** of the finished laminated glass.

Industry lamination guidance consistently treats clean and fully dry glass as a prerequisite for adhesion: work in a low-dust area, use clean gloves to avoid fingerprints and natural skin oils, and inspect under good lighting before lay-up. Contaminants left at the interface are a common root cause of optical defects and bond failure—alongside vacuum, temperature, and hold-time factors addressed in other CNCGLASS notes.

CNCGLASS · 2. How to Clean the Glass Surface

Select the cleaning method by the level of surface contamination. Always finish with a complete dry before EVA film lay-up.

(1) Light soiling — clean water

Use **clean water** if the glass surface is not heavily contaminated. Wipe thoroughly, remove rinse residue, and dry completely before stacking EVA film.

Where a glass washing machine is available, fabricators commonly use controlled wash water and a full dry cycle; for hand cleaning, avoid leaving detergent films or hard-water spots that can reduce adhesion. Do not invent or substitute undocumented detergent recipes here—qualify any detergent on your own adhesion samples.

(2) Heavy contamination — solvent / acid mix

If the glass surface is **highly contaminated**, use a mixture of **85% ethanol** and **15% glacial acetic acid** (ratios retained from source shop practice).

In **serious** contamination cases, the same practice optionally adds **1% hydrofluoric acid (HF)** to the cleaning mixture. Keep the **85% / 15% / 1%** ratios as given; do not invent new chemical concentrations.

Safety — hydrofluoric acid (HF)

Hydrofluoric acid is highly corrosive and a severe irritant. Even dilute HF can cause painful chemical burns, delayed deep-tissue injury, and systemic toxicity if absorbed through skin or inhaled. Treat any HF-containing cleaner as a hazardous substance: work only with trained personnel, under local chemical-safety rules, with emergency calcium gluconate gel and spill response available as required by your site procedures.

Mandatory PPE when HF is present: chemical-resistant gloves rated for HF (do not rely on ordinary latex), chemical splash goggles or a full face shield, a suitable respirator / mask per your workplace respiratory program, and protective clothing that covers exposed skin. Never handle HF bare-handed. Original shop guidance already required mask and gloves to protect workers; this note strengthens that requirement.

(3) Remove all residues and dry completely

Make sure to clean completely the **dirt, oil stain, anti-mildew agent**, and similar residues from the glass surface. Then **completely dry** the glass before you start to make laminated glass with EVA film.

Moisture-proof / anti-mildew powder left on the glass is a frequently reported contributor to delamination in EVA laminates. After cleaning, verify both faces under strong light, keep gloves clean during lay-up, and do not proceed while the glass is still damp or streaked.

CNCGLASS · Illustration — EVA Safety Laminated Glass

Product illustration (archive image; watermarked *cnc@cncglass.com*). Old on-image title/logo overlays were softened before watermarking:



Figure 1. Example of EVA interlayer safety laminated glass after impact (fragments retained by the interlayer). Clean glass surfaces before lay-up are essential to adhesion quality.

CNCGLASS · 3. Practical Checklist Before EVA Lay-Up

1. Match method to soil level: clean water for light soil; 85% ethanol + 15% glacial acetic acid for heavy contamination; optional +1% HF only in serious cases with full PPE and site approval.
2. Remove dirt, oil, anti-mildew powder, fingerprints, and cutting debris from both glass faces that will contact the EVA film.
3. Dry completely — no wet edges, no streaks, no trapped rinse water.
4. Inspect under good lighting; re-clean any remaining haze or spots before stacking.
5. Use clean gloves at lay-up; keep the clean-room / workshop dust load under control.

Cleaning alone does not replace correct vacuum, temperature, and hold time. If bubbles or delamination persist after verified cleaning and drying, audit those process variables next.

CNCGLASS · Closing

Thorough glass-surface cleaning and complete drying before EVA lay-up reduce the chance of bubbles and delamination at the glass–film interface. Use the lightest effective cleaning method, keep the documented 85% / 15% / 1% ratios when the solvent–acid route is required, and treat any HF-containing step with full chemical PPE and local compliance review.

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