

CNCGLASS

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TECHNICAL NOTE

Spontaneous Breakage (Self-Explosion) Solutions When Processing EVA Film Laminated Glass

By Peter Lin

Spontaneous breakage (also called self-explosion in the industry) of EVA-film laminated glass can occur during cooling after the oven cycle, or shortly after processing. Typical drivers are cooling that is too fast or uneven, contact between hot glass and cold water, glass quality defects, residual internal stress in the EVA interlayer that tries to contract after lamination, and a hard raised point inside a dirty silicone vacuum bag that concentrates vacuum pressure on the glass. This note lists practical causes and corrective actions for laminated-glass fabricators. The only numeric process temperature retained from the source guidance is 75 °C for the oven-door cooling rule.

CNCGLASS · Illustration



Figure 1. Example of shattered safety laminated glass (fragments retained by the interlayer). Rapid cooling, thermal shock, residual film stress, poor glass quality, or a hard point under vacuum can initiate such breakage during or after EVA processing.

CNCGLASS · Causes and Solutions for Spontaneous Breakage in EVA Film Laminated Glass

1. Cooling too fast after the oven cycle

If the laminated glass cools too quickly, thermal stress can initiate breakage. Do not open the oven door to force cooling after the temperature of the laminated glass is lower than 75 °C. Allow a controlled cool-down with the door closed once the laminate is below 75 °C.

2. Hot laminated glass contacting cold water

Avoid letting hot laminated glass touch cold water. Sudden hot-to-cold contact creates thermal shock (surface contraction while the core remains hot) and can crack or shatter the laminate.

3. Uneven cooling between stacked laminates

Place wood blocks between laminated glass sheets so that cooling is evenly distributed across the stack. Gaps for air circulation reduce local hot spots and uneven contraction that can lead to breakage.

4. Poor glass quality

Glass of poor quality is more prone to spontaneous breakage. Use better glass with sound edges and fewer defects. Edge chips, inclusions, and residual tempering or handling damage raise the risk of delayed or process-related failure.

5. EVA film internal stress not relieved

Good-quality EVA film has its internal stress eliminated (relieved) so that the film contracts less after processing. If residual internal stress remains in the film, that stress tends to contract toward its original state during or after lamination and can break the laminated glass.

Prefer EVA film whose manufacturer has properly relieved internal stress, and follow the grade's recommended lamination process.

6. Dirty silicone vacuum bag or hard debris inside the bag

If the silicone vacuum bag is not clean—for example if a hard block or debris remains inside—the pre-laminated glass may sit on that raised point. When vacuuming starts, concentrated pressure at that point can break the laminated glass. Keep silicone bags clean and free of foreign objects before every cycle.

For any other situation related to spontaneous breakage of EVA-film laminated glass, please feel free to contact us.

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