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CNCGLASS TECHNICAL NOTE

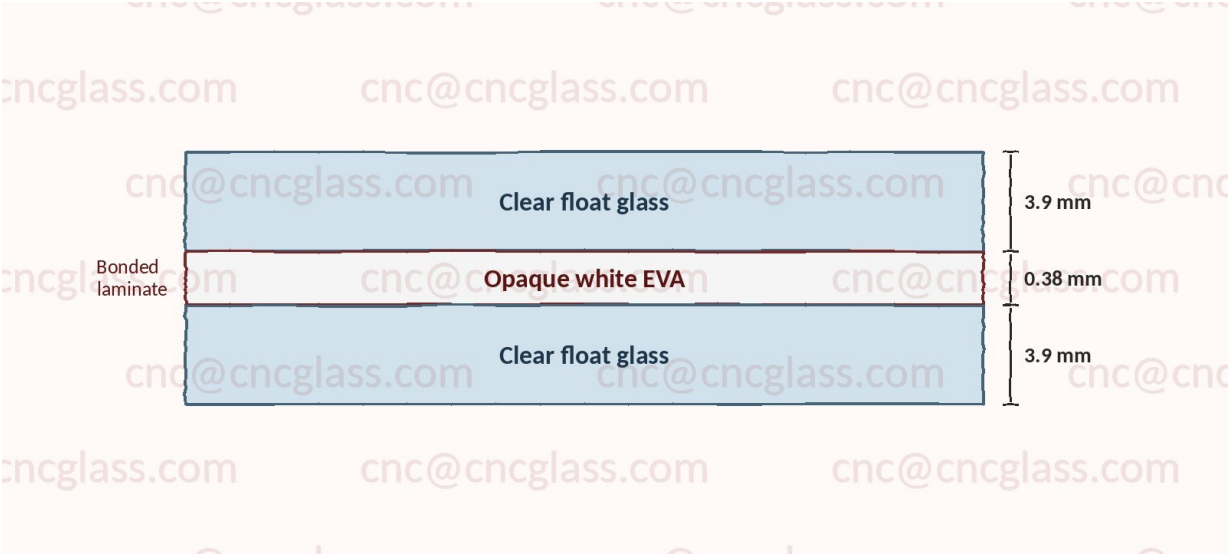
CNCGLASS Opaque White EVA Laminated Glass — Radiation, Heat and Humidity

An opaque white decorative EVA laminate — 3.9 mm clear float / 0.38 mm opaque white EVA / 3.9 mm clear float — was evaluated for radiation resistance, high-temperature resistance and humidity resistance to EN ISO 12543-4:2011, with luminous transmittance measured to EN 410:2011. All three items met the cited EN ISO 12543-2:2011 criteria: the absolute change in transmittance was 1.0 % on each specimen, and no bubbles, delamination or cloudiness were observed after heat or humidity exposure.

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Construction

The makeup is a decorative laminated safety glass in the EVA family, described against EN 14449:2005 and EN ISO 12543-2:2011. Two plies of 3.9 mm clear float glass are bonded with a 0.38 mm opaque white EVA interlayer. The average thickness of the finished laminate is about 8.2 mm; the high-temperature and humidity specimens were also headed at a nominal 8 mm, and the measured thicknesses after each exposure are tabulated below. Specimens measured 300 mm × 300 mm, with a polished edge and no edge protection.



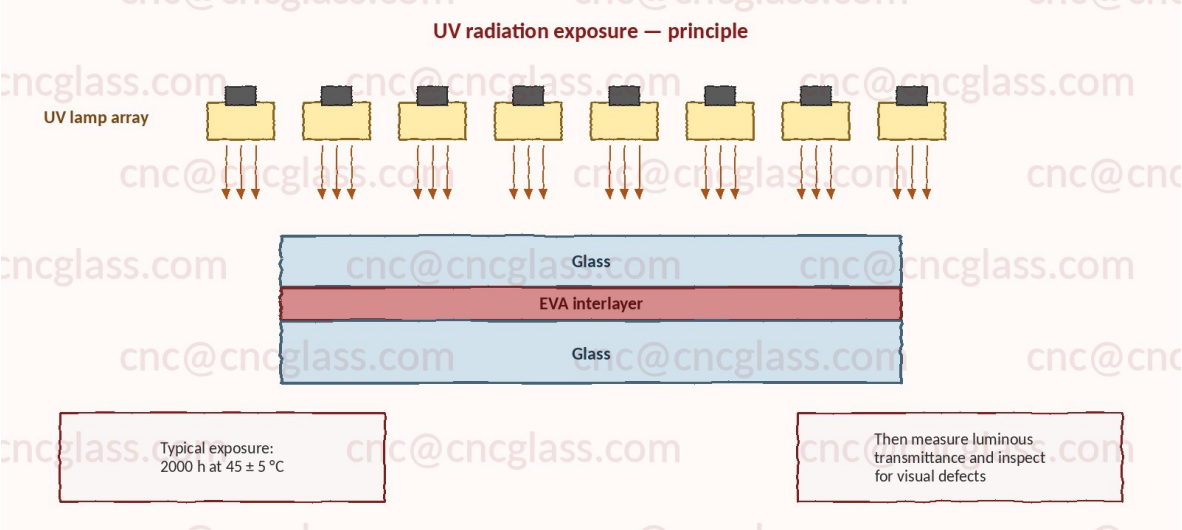
Decorative laminate construction: 3.9 mm clear float / 0.38 mm opaque white EVA / 3.9 mm clear float.

Radiation resistance

Radiation exposure followed EN ISO 12543-4:2011, using an array of sixteen 300 W ultraviolet lamps for 2000 h at 45 ± 5 °C. Three specimens, each 30 cm × 30 cm, were measured for luminous transmittance to EN 410:2011 before and after exposure. Because the initial luminous transmittance was not more than 20 %, EN ISO 12543-2:2011 point 5.3 assesses the absolute change, which shall remain within ± 2 %.

Specimen	τv before (%)	τv after (%)	Absolute difference (%)
1	11.9	10.9	−1.0
2	12.2	11.2	−1.0
3	11.9	10.9	−1.0

No delamination was observed after radiation. The absolute change of 1.0 % on every specimen lies within the ± 2 % allowance, so the construction conforms to EN ISO 12543-2:2011 point 5.3.



Principle of the ultraviolet radiation exposure used to assess colour and transmittance stability of the laminate.

High temperature and humidity

High-temperature exposure followed EN ISO 12543-4:2011 point 5, Procedure A, for 16 h. Humidity exposure followed point 6.3.1, with condensation permitted. Before either exposure, visual inspection found no bubbles, delamination or cloudiness. After each exposure the three specimens were re-measured for thickness and inspected again.

Exposure	Thickness (mm)	Bubbles / delamination / cloudiness	Conformity
High temperature — specimen 1	8.15	None / None / None	Yes
High temperature — specimen 2	8.19	None / None / None	Yes
High temperature — specimen 3	8.16	None / None / None	Yes
Humidity — specimen 1	8.17	None / None / None	Yes
Humidity — specimen 2	8.18	None / None / None	Yes
Humidity — specimen 3	8.22	None / None / None	Yes

Commentary for laminated-glass use

An opaque white EVA interlayer is chosen when the pane must hide a backing, diffuse light or carry a solid decorative colour. The initial luminous transmittance of about 12 % is consistent with that intent: most incident light is scattered or absorbed in the interlayer, so the pane reads as a dense white laminate rather than as a clear safety glass. For such low-transmittance products the durability criterion is an absolute, not a relative, change — a 1.0 % shift after 2000 h of ultraviolet exposure is a modest movement and sits comfortably inside the ± 2 % band.

The heat and humidity results are equally straightforward. Procedure A is a severe oven exposure, and the condensed-humidity path is the more demanding of the two humidity options in EN ISO 12543-4. The absence of bubbles, delamination or cloudiness on every 300 mm × 300 mm, polished-edge, unprotected specimen indicates that this 0.38 mm opaque white EVA bonds reliably to clear float in a conventional two-ply makeup. Fabricators should still

keep edges clean, follow a proven lamination cycle, and treat any change of glass type, interlayer gauge or edge protection as a distinct construction.

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