

CNCGLASS

Brand: CNCGLASS

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TECHNICAL NOTE

History of Laminated Glass (Laminating Interlayers)

By Peter Lin

CNCGLASS · Overview

Laminated glass is a sandwich of two or more glass plies bonded by a polymer interlayer so that, after breakage, fragments remain adhered to the film rather than flying free. The interlayer chemistry has changed several times over more than a century — from early cellulose plastics, through polyvinyl butyral (PVB), to ionoplast structural films and architectural EVA. This note summarizes that timeline and clarifies how today's main interlayer families relate to one another.

CNCGLASS · Chronological History

Origin (early 1900s). The invention of laminated safety glass is widely attributed to French chemist and artist Édouard Bénédictus. Around 1903 he observed that a dropped glass flask coated with dried cellulose nitrate (celluloid) retained its fragments; he later filed laminated-glass patents (commonly cited from 1909) using cellulose nitrate between glass sheets — commercialized as Triplex. Earlier English work around 1905–1906 (e.g. John Crewe Wood's windshield patent using a balsam bond) is sometimes mentioned in histories, but it is not the cellulose-nitrate Triplex lineage that became the mainstream safety-glass story. Vague attributions that place celluloid laminated glass with an unnamed English inventor around that year are rewritten here.

1910s–1920s — cellulose era. Early commercial laminates used celluloid / cellulose nitrate, sometimes with glue or varnish aids. Cellulose nitrate yellowed and was flammable; by the 1920s–early 1930s, more light-stable cellulose acetate (cellulose ester) largely replaced it as the interlayer.

1930s — vinyl resins and PVB dominance. Acrylate and other vinyl approaches were explored in the 1930s. Polyvinyl butyral (PVB) patents and commercial products followed in the mid-to-late 1930s (patents ~1935; commercial sheet such as Butacite / Saflex ~1936–1938). PVB resisted discoloration better than cellulose plastics, retained toughness at low temperature, and bonded well to glass — becoming the dominant automotive and architectural interlayer for decades.

Selected early milestones retained from industry memory: glue + celluloid combinations (mid-1910s), varnish-assisted stacks, cellulose-ester films (~1920s), acrylate trials (~late 1930s), and vinyl-resin films before PVB became the standard name.

Later 20th century — PVB refinement. PVB continued to be formulated for mechanical toughness, temperature behavior, and light stability. It remains the most common interlayer worldwide for windshields and many architectural laminates.

SentryGlas® / “SGP” — not modified PVB. Trade names such as SGP are often used loosely for SentryGlas®-class films. Chemically, SentryGlas® is a **thermoplastic ionoplast** (ethylene–methacrylic acid ionomer family), originally developed by DuPont and now offered under Kuraray Trosifol® SentryGlas®. It is a separate polymer class from PVB — stiffer and stronger for structural glazing — **not** a DuPont-modified PVB sheet. Calling SGP “modified PVB” is chemically incorrect and is corrected here.

Early 21st century — architectural EVA. Ethylene–vinyl acetate (EVA) interlayer films grew quickly in architectural laminated glass. EVA can be processed in vacuum / simple oven laminators without a classical autoclave cycle that many PVB lines require, which lowered the barrier for decorative and specialty laminators. Mechanical, thermal, and light-

stability grades have continued to improve. EVA complements PVB in many indoor and outdoor architectural uses; it does not universally replace PVB in every specification.

CNCGLASS · Interlayer Families Today

Family	Chemistry (summary)	Typical role
PVB	Polyvinyl butyral thermoplastic	Most common automotive & architectural interlayer
Ionoplast (SentryGlas® / SGP-class)	Ethylene–methacrylic acid ionomer — NOT PVB	Structural / high-stiffness laminated glass
EVA	Ethylene–vinyl acetate copolymer film	Architectural & decorative; vacuum / oven friendly

Keep the three families distinct in specifications and sales copy: PVB for broad safety glazing, ionoplast for structural stiffness, and EVA where vacuum processing, open-edge tolerance, or decorative inserts matter.

CNCGLASS · CNCGLASS Note

CNCGLASS supplies China-produced SGP-class ionoplast interlayer (super-clear grades) for structural laminated glass, alongside EVAFORCE® architectural EVA films for vacuum / oven lamination. Availability of China-made ionoplast SGP-class film is offered for project inquiry; exact grade, thickness, and certification packages are confirmed per order.

CNCGLASS · Appendix — White EVA Visible Level (short)

Short reference for white EVA decorative grades when Visible level figures appear in product copy. Use the term **Visible level** only — do not label these values as laboratory transmittance acronyms in client-facing text.

Grade	Source figure	Note
Super Milky White EVA	0% Visible level	Opaque marketing figure retained
Sandblasting White EVA	65% Visible level	Marketing figure retained (blue); see Chinese audit note
Cool Jade White EVA	82.2% Visible level	Suggested from published CNC-related Cool White / Cool Jade figure

CNCGLASS · Figure



Figure 1. Broken safety laminated glass held together by the interlayer — classic impact pattern illustrating why laminated glazing was developed (archive photo; overlay text softened; watermarked).

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