

Dichrolam™ Safety Laminated Glass

PRODUCT IDENTIFICATION AND LIMITATIONS

Supplier - Distributor

Specialty Architectural Products, LLC. (SAP, LLC)

PRODUCT DESCRIPTION

Composition – Dichrolam¹ decorative surfacing / window glazing / lighting diffractor sheet product is a structural (glass) and semi-structural laminated sheet product of glass, vinyl, tpu, spg, eva, and/or layered PET composite consisting of substrate, dichroic layering inside and applied between # 2 and #3 surface with clear adhesive lamination material interface. These custom constructions exhibit transmissive and/or reflective color-changing characteristics. All constructions of Dichrolam create color from the interference principles of *thin film physics*, therefore they do not have any pigments or dyes, and will not fade in color over time or heat loads up to 290°F.

Category II Safety Glass Certification:

The laminated safety glass version of Dichrolam Red and Green (excluding the “Sea” series) utilizes SGCC approved interlayers and passes CPSC 16 CFR 1201 Category II Safety Glass certification, whether annealed, heat strengthened, or tempered according to American National Standards Inc Z97.1975. Penetration resistance from the 2.5 KG Ball Drop Test prove equal or higher resistance than standard PVB laminated glass at 48” drop height.

Heat, humidity, and UV light resistance have all proven to equal and/or exceed that of standard PVB laminated glass.

Fire rating:

ASTM E-84 smoke density rating – Dichrolam Red and Green in safety laminated glass has identical fire retarding properties as standard safety laminated glass with PVB innerlayers.

Basic Uses – Available in laminated glass plate form in vertical, horizontal, grades. It is recommended for interior, as well as exterior applications such as lighting diffractors / louvers, light sculpture, curtainwalls, decorative tiles, signage, point of purchase displays, bar tops, desks, conference tables, occasional furniture, displays or whenever a visually dynamic, full spectrum color shifting appearance is a desirable part of the design concept, whether backlighting or using for opaque surfacing.

LIMITATIONS

Standard Dichrolam Laminated Glass can be specified for exterior application where temperature and humidity levels are normal.

All Dichrolam panels will be supplied as finished sized units, not to be cut.

All Dichrolam safety glass installed in areas that are subject to constant moisture (near ground or water features) should be edge sealed with a waterproof sealant such as silicone or butyl type sealants. These edge applied sealants must be allowed to dry and off-gas its solvents within 48 hrs, and must not be in direct contact with laminate layers if encapsulated (as in the case of embedding in channel), or can be in contact with laminate layers if not encapsulated in frame or channel (which allows direct contact with air and drying occurs before solvent damage). Encapsulating applications like handrail channels bonded to laminate edge with full sealant encapsulation that does not allow drying of sealant inside channel, and when sealant is in direct contact with laminate core layers, WILL cause solvents to creep into core laminate layers causing fissure delamination, so encapsulating requires masking of direct laminate core layer edge with tape before sealant is applied, and only applied on #1 and #2 surfaces – not direct edge. Any delamination of non-exterior approved laminates is the risk of buyer. End user fabricating, cutting or edge polishing techniques increase risk of delamination at buyers risk.

¹ Dichrolam™ term belongs to Dichrolam, LLC but is being used with expressed permission.

Due to the unique lamination procedure, optical thin film dichroic core uniqueness, its high reflectivity and said reflectivity's ability to disguise and hide minor imperfections, the following minor visual aberrations are allowable in the dichroic layer core of these dichroic laminates, not covered under warranty:

- Occasional microbubbles or small air pockets may be present throughout, though undetectable at ten foot viewing distance.
- Occasional dust specs, hairs, minor scratches, minor dichroic film wrinkling or foreign matter within lamination layer due to manual, “hand made” manufacturing process, may be present throughout, though undetectable at ten foot viewing distance.
- Edge fissures less than ¼” from edge of air pockets at edges that may or may not show up over one to three years time. Sealants applied to edge can accelerate this occurrence if in an encapsulating application like handrail channels bonded to laminate edge with full sealant encapsulation that does not allow drying of sealant inside channel, and when sealant is in direct contact with laminate core layers (see limitations paragraph above).
- Color uniformity. Transmitted and reflected colors are subject to the uniform thickness of the dichroic films used in creating these exotic laminates, and there will always be minor bands of color or intensity deviations that are impossible to prevent, as the films very high – tech and are the only ones of their kind.
- Minor, non-uniform waves present in the dichroic layer of the laminated safety glass version of Dichrolam. Major waves, ripples, or wrinkles are always rejected by SAP, LLC, and those panels are remade, but minor waves are often present, and only viewed at skew angle reflection viewing, and are acceptable.

All storage, handling, and final applications / mounting of any construction of dichroic laminates must be protective of surfaces from scratching. The following limitations must not be exceeded:

- Storage: Indoor, vertical or flat storage is recommended, not leaning.
- Be sure to protect edges and surfaces during transport. Aggressive banding, strapping and tying down of sheets without corner protectors will damage sheets
- Overtightened fastening through sheets

APPLICATION / INSTALLATION

SAP, LLC dichroic laminates must be sufficiently supported, through encapsulation in a frame, edge only bonding, or point hold like standoffs through holes (spider fittings, etc.).

CAD provided to SAP, LLC for fabrication of Dichrolam must be accurate, and warranty is void if provided files are inaccurate.

Adhesives:

Neutral cure silicones and polysulphide sealants are best for bonding and sealing edges of Dichrolam Safety glass. UV cured adhesives are not to be applied to laminate edge of glass, unless exposed lamination layer is pre-sealed with clear tape to allow bond to glass portion of edge only.

“Chromacrystal” three layer “shattered” or “Cracked Ice” FX glass laminations:

Lamination is ordered as “final size” with shape and holes specified prior to manufacturing due to tempered glass requirement, and no cutting or drilling is possible after lamination by buyer. Flat edge polishing is available.

MAINTENANCE

Surfaces should be cleaned using a clean, soft cotton cloth with normal glass cleaners. Abrasive cleaners, strong ammonia or alkaline solutions should always be avoided unless glass requires scratch removal with cerium polishing.

SIZE AVAILABILITY, COLOR AND COST

Available in lengths up to 144 inches x 54” wide and up to 1- 3/4” thick and cut to specified size lists.

- Colors are “Red” and “Green” for the laminated glass Dichrolam. Color spec is based on *reflection* color at perpendicular viewing with dark background, and transmitted color is always complimentary (opposite) to reflected color – all the way through the color shift.
- Transmission color for “Red” at right angle viewing will be aqua blue/green, shifting into purplish blue, then magenta at skew angle

viewing, while reflection color will be copper / red shifting through yellow / gold and into green at skew angles.

- Transmission color for "Green" at right angle viewing will be purplish blue, shifting into magenta, then through orange and yellow at skew angle viewing, while reflection color will be yellow green shifting into deep blue at skew angles.

TECHNICAL SERVICE

For technical service, please contact Igor Beaufiles at 419-382-0706.

DICHROLAM LIMITATION OF WARRANTY & LIABILITY

Seller warrants that the products sold hereunder shall be of merchantable quality and shall conform in all material respects to Seller's standard specifications shown herein. Buyer assumes all risks as to the results of the use of the products purchased, whether used singly or in combination with other materials or in any process. Manufacturers who resell Dichrolam as their own products to third and fourth party etc. users forfeit all warranty rights due to original supplier's loss of control over final engineering, application, fabrication, and installation specifics.

Limitations of Claims

At Seller's option, Seller will replace, without additional charge, products which do not comply with the warranty or, upon return of the products at Seller's expense, refund the purchase price up to five full years from date products are received by buyer. Reinstallation of replacement products are at buyers expense unless due to breach of warranty or as otherwise noted.

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, BASED ON ANY COURSE OF DEALING OR USAGE OF TRADE OR OF FITNESS FOR PARTICULAR USE OR OTHER-WISE, OTHER THAN THAT STATED HEREIN OR REQUIRED BY APPLICABLE LAW. SELLER'S LIABILITY FOR ANY LOSS OR CLAIM WHATSOEVER, INCLUDING A CLAIM FOR BREACH OF THE WARRANTY OF MERCHANTABILITY, SHALL BE LIMITED SOLELY AND EXCLUSIVELY TO REPLACEMENT OF DEFECTIVE OR NON-CONFORMING PRODUCTS OR, AT THE ELECTION OF SELLER, TO RETURN OF THE PRODUCTS AND REPAYMENT OF THE PURCHASE PRICE. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY OTHER ACTUAL DAMAGE OR EXEMPLARY DAMAGES.

Any course of dealings between the parties to the contrary notwithstanding, buyer is responsible for inspection of the product upon receipt and prior to any cutting, fabrication, or installation. Any claim by Buyer for breach of warranty shall be deemed waived to the extent it could have been determined by such inspection, unless presented in writing to the Seller within thirty (30) days from the date of receipt of the products to which such claim relates. In all events, such claims not made within two months after receipt are deemed waived.

Some products are shipped with a protective film to protect product during transit and storage. All such products must be inspected for defects prior to cutting, fabrication, or installing. Surface must then be protected during cutting, fabrication, and installation. Failure to remove the protective film to inspect for defects prior to cutting or fabrication is at Buyer's risk.

Seller shall have no liability for defects or other failures caused by failure to fabricate, install, use or maintain the products in accordance with SAP, LLC instructions or damage to product occurring after shipment to the initial purchaser.

Buyer assumes all risk and liability for loss, damage or injury to the person or property of Buyer or others arising out of use or possession of any products sold hereunder. Any questions concerning this warranty or requests for service should be to: **SAP, LLC Attn: Igor Beaufiles**