

Clearcoretm Fabrication Manual

Introduction. What is *Clearcoretm*? A clear thermoplastic (usually Acrylic based although Polycarbonate, PETG, and others can be used) with decorative colors and patterns reverse laminated (second surface lamination). The decorative surface is seen through the clear portion of the laminate. Unlike other similar products on the market *Clearcoretm* is suitable for both **Interior and Exterior** application. It can be laminated similar to HPL's or formed similar to acrylics.

Fabrication

Clearcoretm fabricates similar to acrylic sheet and is laminated to substrates similar to High Pressure Laminates.

Sawing, Routing, and Drilling

Saw blades- OK- suitable for cutting acrylic. 80 tooth, 10" diameter is common. Typical rake is 5-10 degrees and teeth clearance angle is 10-15 degrees.

Typical saw speeds:

6 inch Dia. 6400 RPM

8 inch Dia. 5000 RPM

10 inch Dia. 4000 RPM

12 inch Dia 3000 RPM

Band Saws- OK- use a blade suitable for cutting acrylic.

All cut angles should be radius'd to prevent stress cracking. 1/8" is suitable.

Routers- OK- use bits suitable for cutting acrylic.

Drilling- OK- use twist drills with angle 60-90 degrees. These prevent chipping and cracking.

Speeds of approximately 3500 RPM are suggested.

NOTE: All *Clearcoretm* products must be sawed with the backing side facing up (acrylic side down) this is to insure a cleaner cut and that no damage is done to the decorative backer foil.

Forming

It is important the sheets be slowly and evenly heated throughout. Sheets with non-uniform temperatures can pull unevenly.

Cold bending. .060 can be bent to a radius of 4 inches.

.120 can be bent to a radius of 18 inches.

Hot bending. Down to 1/2 inch with proper equipment.

Heating

275-320 degrees is recommended. Continuous clamping is recommended.

This will vary with the type of heating and depth of forming needed.

Slow heating to eliminate stress is desired. For example it should take about 3 minutes to bring .125 thick sheets to forming temperature of 300 degrees F. Slow cooling after forming is necessary to prevent stress. Parts not cooled properly may have a tendency to warp. Bubbles or blisters are a sign of excessive heat, moisture in the sheet, or Uneven heating. Bumps are caused by air trapped between the form and the material.

Edge Polishing

It is possible to polish out the edges with the same techniques used to fabricate acrylic. Flame polishing, however, is not recommended. Rounding of corners or smoothing out irregular cuts can be done with medium metal files. Edges should be well machined sanded or hand scraped using a stationary polishing head 8-14 inch in diameter wheel with 2-3 inch width of muslin. 1st buff using a medium coarse buffing compound, then use rouge as a finishing compound. Products such as 3M Finesse ittm and Novus plastic polish are suitable.

Surface Polishing

It is possible to remove scratching from the surface using the same methods used for acrylic fabrication. 1st use the same technique mentioned for edge polishing. If the scratches are too deep for that type then you can use water with fine grit sandpaper (240-320 grit) and then use 400 grit as a 2nd step and then use 500 grit as a final step. You need plenty of water for this procedure. Products such as 3M Finesse ittm and Novus plastic polish are suitable, follow products application recommendations.

Laminating

It is possible to laminate *Clear Coretm* to typical substrates used for High Pressure Laminates. **Gypsum board, paperboards, and concrete are NOT recommended.** Typically MDF, Particleboard, Plywood, Hardboard are suitable materials. *Clear Coretm* has been tested using DAP / Weldwood non flammable (Neoprene Rubber Formula) with good results. Neither flammable solvent, nor gel based contact cements are recommended, and should be considered only after the customer has done sufficient testing to assure suitability to their application. Extra care must be taken to insure that all solvents or water have been dried according to manufacturer's recommendations prior to joining. Spraying produces the best glue line and is recommended. Cold Press adhesives suitable for high-pressure laminates can also be used. Counter balancing of the core material similar to high-pressure laminates (HPL's) is necessary to prevent warping of the laminated sheet. Use the same methods and counterbalance material used with HPL's for good results. For optimal results, counter balance with the same thickness acrylic sheet as *Clearcoretm*.

Important Notice. Many items have protective film on the **BOTTOM and TOP** of the sheet to protect against scratching during handling and shipping.

1st time users should request a sample piece (approx. 1 x 2-ft.) to check their fabrication and lamination techniques.

The **BOTTOM FILM MUST BE REMOVED** prior to applying adhesive.

TOP FILM is to remain in place during fabrication to prevent against scratching during the fabrication process. However it is extremely import to visually inspect the sheet prior to fabrication to insure that there are no visible defects that can't be accepted. In the event that inspection can not be adequately inspected with the top mask on the customer must remove the mask prior to fabrication to inspect the sheet. Then the customer must re-mask the sheet with another mask prior to starting fabrication.

Storage

Before any fabrication, sheets must be conditioned for a minimum of 48 hours in the same room as the substrates. 70F and relative humidity of 50% is recommended.

Masking should be left in place on both surfaces (if applicable) until fabrication.

Sheets should be stored horizontally completely supported or vertically at a slight angle in an A frame type rack.

Insure that the sheets are not stored near heat sources that can deform the sheets.

Care and cleaning

Use only Naphtha or Mineral spirits to remove excess adhesive. Avoid using Acetone, MEK's, etc. as these may damage the surface.

Use a mild soap solution that does not contain alcohol or ammonia. Use a soft lint free cloth to dry.

DO NOT use any abrasive cleaners as these will dull and scratch the surface.

Characteristics

Our (optional) 1/8 acrylic performs like standard acrylic. Our High Performance modified acrylic (standard) .060 thickness (designated by HP in the part #), is rigid and tough, lightweight and offers ease of fabrication and machining. Cutting, routing, and cementing can be performed. *Clearcoretm* offers the look of acrylic with extra impact strength to aid in fabrication, shipping, handling, and prevent edge chipping. All sheets come with a removable polyethylene mask to protect the sheet during handling, shipping and fabrication. Most are suitable for interior or exterior applications.

Dimensional Stability.

Sheets will experience an expansion or contraction when exposed to a temperature or humidity change. Shrinkage will occur when the unclamped sheet is subjected to forming temperatures, but post-forming stability is excellent.

Flammability

Our sheets are combustible thermoplastic. Precautions should be taken to protect this material from flames and high heat sources. Rapid burning to completion occurs if not extinguished. The products of combustion, if sufficient air is present, are carbon dioxide and water. However, in many fires sufficient air is not present and toxic carbon monoxide will be formed.

Uses:

Many interior design applications, where decorative HP laminates could be used (Not recommended for high wear horizontal surfaces). Furniture, Store fixtures, displays, exhibits, and signage are a few other uses. For exterior application, *Clearcore*™ can be used for automotive interiors and exteriors, boat dashboards, outdoor signage and much more.

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The Seller warrants that the products sold hereunder shall be of merchantable quality and shall conform to the specification herein. However, the buyer assumes all risks. The only remedy to the buyer shall be for the seller at its sole option to either replace the sheets which are deemed to be defective or refund the purchase price. The seller makes no warranty; express or implied based on the fitness of the product for any purpose other than stated herein. The seller shall not be liable for any additional loss whatsoever, including a claim for breach of merchantability, any incidental, or collateral damage or loss, It is the buyer's responsibility to inspect the product upon receipt and prior to any fabrication. Any claim whatsoever shall be deemed waived once any fabrication or cutting is started. Any claim shall also be deemed waived unless presented in writing within ten days of receipt of said product. It is the sole responsibility of the purchaser to do the necessary tests to insure that these products meet the purchaser's requirements. **NO WARRANTY IMPLIED OR OTHERWISE SHALL APPLY** to products that undergo manufacturing.