Acrylite® Radiant ACRYLIC SHEET

CYRO TECH BRIEF

Fabrication

ACRYLITE® Radiant acrylic sheet can be fabricated using the same machining parameters and equipment as standard acrylic sheet. ACRYLITE Radiant sheet has a treated surface, which produces the radiant effect. The key to successful fabrication of ACRYLITE Radiant sheet is properly orienting the treated surface relative to the fabrication equipment.

Note: *The treated surface is protected with a colorless polyethylene masking. The untreated surface is protected with a blue polyethylene masking.*

Handling and Maintenance

Cleaning

ACRYLITE Radiant sheet can be cleaned with a solution of mild soap or detergent and lukewarm water. Use a clean soft cloth, applying only light pressure. Care must be taken not to scratch the treated surface of ACRYLITE Radiant sheet. The treated surface of ACRYLITE Radiant sheet will scratch easier than the untreated surface.

Storage

Skids of ACRYLITE Radiant sheet are shipped with a polyethylene film overwrap, which protects the sheet from dirt and moisture. The overwrap should be left intact during storage to minimize warpage. Sheet should be stored horizontally and fully supported on the bottom. ACRYLITE Radiant sheet should not be stored vertically or near heat sources, as heat tends to soften and deform the sheet.

Cutting with Circular Saws

Conventional panel or table saws are recommended to cut ACRYLITE Radiant sheet. Saw blades should be carbide tipped with a triple-chip design for plastics. Moderate feed rates (100 - 300 in/min) insure a proper cut. The blade protrusion should be 1/8 – 1/2" above the top sheet. **Orient the sheet so the blade enters the cut on the treated surface and exits from the untreated surface.**

Routing

ACRYLITE Radiant sheet can be routed with the same equipment used for routing standard acrylic sheet. When routing ACRYLITE Radiant sheet, O-flute straight or O-flute up-spiral routing bits provide the best results. When using the O-flute up-spiral bit, it is important to **face the treated surface away from the collet.** When CNC routing, feed rates of 150 – 300 in/min and spindle speeds of 18,000 – 20,000 RPM will produce good results on most equipment.

Cementing

Methylene chloride-based solvent cements, typically used for acrylic sheet fabrication, work well with ACRYLITE Radiant sheet. ACRYLITE Radiant sheet will easily bond to standard acrylic sheet because both materials react to the same cements, permitting the use of acrylic, including acrylic profiles in conjunction with ACRYLITE Radiant sheet. **Stronger joints are obtained when cementing the untreated surface.** The joint strength achieved by cementing on the untreated surface is similar to the joint strength achieved with standard acrylic sheets. While in comparison, the joint strength achieved cementing on the treated surface is much less. Some improvement in joint strength on the treated surface can be achieved by using cyano-acrylate cements. However, cementing to the untreated surface still produces better results.

Edge Finishing

Edge finishers will produce very smooth edges on ACRYLITE Radiant sheet. Use the same depth of cut and feed settings as ACRYLITE® FF acrylic sheet. Fast feed rates may result in chipping while slow feed rates can cause melting. **Orient the sheet so that the cutter initially enters at the treated surface and exits at the untreated surface. Edge finishing may produce slight distortion along the finished edge. Perform preliminary edge finishing tests to determine if the edge is acceptable.**

Drilling

ACRYLITE Radiant sheet drills cleanly using spade bits with side spurs (i.e. IRWIN 2000 Speedbores) and Brad point bits. Twist drill bits (modified for plastics) produce satisfactory holes in ACRYLITE Radiant sheet. **Orient the sheet so that the drill bit enters the treated surface and exits the untreated surface.** Proper backing material such as plywood or another piece of acrylic should be used when drilling ACRYLITE Radiant sheet. The backing material will help prevent chipping on

the bottom surface. Rotational speeds from 500 – 1000 RPM, combined with feed rates in the 3 – 12 in/min range will usually provide good results.

Line Bending

ACRYLITE Radiant sheet can be line bent quickly and easily using traditional line bending equipment. For best results, **bend the sheet with the treated surface in tension (on the outside of the bend). For slight bends, ACRYLITE Radiant sheet should be heated on the untreated side. For sharp bends, bends greater than 90 degrees, it is recommended to heat the treated side.**

Thermoforming

ACRYLITE Radiant sheet can be thermoformed into various shapes. If the sheet is being heated from one side, the heat source should face the treated surface. ACRYLITE Radiant sheet can be vacuum formed to slight draws. As the draw increases, the sheet will begin to discolor and eventually the sheet will tear. When drape forming, the sheet should be formed with the treated surface in tension. The recommended forming temperatures range, 290 – 320°F, is the same as ACRYLITE® FF acrylic sheet.

Flame Polishing

ACRYLITE Radiant sheet can be flame polished with the same set-up used for standard acrylic sheet. A hydrogen/oxygen torch can be used to flame polish ACRYLITE Radiant sheet. The flame should be bluish, almost invisible, approximately 3" long and narrow. Hold the torch at an angle and "drag" the flame along the edge of the sheet. **Do not flame polish ACRYLITE Radiant Acrylic Sheets individually.** ACRYLITE Radiant sheet should be stacked with the treated surfaces facing into the stack. This will protect the treated surface from the flame. If you are only flame polishing a single sheet, it is recommend that you protect the treated surface of the ACRYLITE Radiant sheet by placing it on a sheet of standard acrylic.

Buffing

Buffing can change edge appearance from a matte to glossy look. For the best edge finish result, perform an initial wet sanding operation. This will remove any saw cut marks. The same buffing equipment can be used on the edge of ACRYLITE Radiant sheet as standard acrylic sheet.

The treated surface of the sheet cannot be polished to remove scratches. Therefore take extra care not to scratch this surface.

ACRYLITE Radiant sheet is designed for indoor use. Its outdoor weather resistance is limited. Consult CYRO Technical Service for details.

Fire Precautions

ACRYLITE® acrylic sheet is a combustible thermoplastic. Precautions should be taken to protect this material from flames and high heat sources. ACRYLITE sheet usually burns rapidly to completion if not extinguished. The products of combustion, if sufficient air is present, are carbon dioxide and water. However, in many fires sufficient air will not be available and toxic carbon monoxide will be formed, as it will when other common combustible materials are burned. We urge good judgement in the use of this versatile material and recommend that building codes be followed carefully to assure it is used properly.

Important Notice

The information and statements herein are believed to be reliable but are not to be construed as a warranty or representation for which we assume legal responsibility. Users should undertake sufficient verification and testing to determine the suitability for their own particular purpose of any information or products referred to herein. NO WARRANTY OF FITNESS FOR PARTICULAR PURPOSE IS MADE. Nothing herein is to be taken as permission, inducement or recommendation to practice any patented invention without a license.

Sales Inquiries

100 Enterprise Drive
PO Box 5055
Rockaway, NJ 07866
973-442-6000
800-631-5384
www.cyro.com

Visit the TechKnowlogy Center at www.cyro.com.

CYRO.COM TECH KNOWLOGY CLICK HERE CENTER

Visitors have immediate access to frequently asked questions, technical information, fabrication tips, physical properties, and hundreds of other facts about acrylics from North America's leading acrylic sheet manufacturer.

Technical Service

25 Executive Blvd.
PO Box 550
Orange, CT 06477
203-795-6081

3127-0603-1.5MG