

The Sterling Collection of ACRYLITE® acrylic sheet



Fabrication

The Sterling Collection of ACRYLITE® acrylic sheet can be fabricated using the same machining parameters and equipment that are recommended for use with ACRYLITE® FF acrylic sheet (refer to ACRYLITE FF Fabrication briefs available at www.cyro.com). However, in some instances better results can be obtained if the orientation of the decorative surface is taken into account during fabrication.

Note: Both surfaces of the sheet are protected with a colorless polyethylene masking. The treated surface can be identified through the masking because it is colored white.

Handling and Maintenance

Cleaning

ACRYLITE Sterling sheet can be cleaned with a solution of mild soap or detergent and lukewarm water. Use a clean soft cloth, applying only light pressure.

Storage

Skids of ACRYLITE Sterling sheet are shipped with a polyethylene film overwrap that protects the sheet from dirt and moisture. The overwrap should be left intact during storage to minimize warpage. Sheet can be stored horizontally or vertically. When stored horizontally or at a slight angle from vertical, full support must be provided for the bottom of the sheet. Sheet surfaces should be kept free of saw chips and other debris which can penetrate the protective masking and cause indentations in the sheet. ACRYLITE Sterling sheet should not be stored 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 Sterling 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 of the sheet. Best results are obtained when the sheet is positioned so that the teeth of the saw blade enter the sheet on the white, treated surface. If positioned so the teeth enter on the other surface, very slight chipping (about 1/64” in size) of the white treatment may occur.

Routing

ACRYLITE Sterling sheet can be routed with the same equipment used for routing ACRYLITE FF sheet. On most

CNC routing equipment, O-flute straight and O-flute up-spiral router bits produce very good results at feed rates of 150 – 300 in/min and spindle speeds of 18,000 – 20,000 RPM. For best results when using an up-spiral bit, position the sheet so that the decorative surface faces away from the collet.

Cementing

Methylene chloride-based solvent cements, typically used for acrylic sheet fabrication, work well when cementing to the untreated surface. This permits the use of other acrylic products, including acrylic profiles, in conjunction with ACRYLITE Sterling sheet. Cementing to the treated surface of the sheet will result in weak or inconsistent bonds which can be broken with light pressure.

Edge Finishing

Edge finishers will produce very smooth edges on ACRYLITE Sterling sheet. However, they will leave very slight chipping (about 1/64” in size) in the white treated surface. For most applications this will not be visible. The same depth of cut and feed settings as used with ACRYLITE FF sheet are recommended.

Drilling

ACRYLITE Sterling sheet can be drilled with the same equipment that is used with ACRYLITE FF sheet. Modified drill bits designed for plastics produce the best results. A proper backing material such as plywood or another piece of acrylic should be used when drilling ACRYLITE Sterling 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 Sterling sheet can be line bent quickly and easily using traditional line bending equipment. The sheet can be heated on either side with acceptable results. Line bends will have a slightly lighter appearance compared to the rest of the sheet, but this will only be visible under very close scrutiny.

Thermoforming

Thermoforming to moderate draw ratios is possible. However, as the draw ratio increases, the decorative finish becomes correspondingly thinner. This results in its appearance becoming duller or less brilliant. It is recommended that a few test samples be made first to evaluate the appearance of the part. When thermoforming, the sheet can be heated on either side. The protective masking should be removed before heating the sheet. The lacquered surface will become soft and tacky when the sheet is heated. Therefore if a mold is used, it should be designed to contact the acrylic surface and not the white lacquered surface of the sheet. For a raised decorative part, this means a female mold should be employed.

Flame Polishing

ACRYLITE Sterling sheet can be flame polished with the same set-up used for standard acrylic sheet. A hydrogen/oxygen torch is recommended. There is some tendency for the white treated surface to char if the flame overspray is excessive. This can be avoided with good technique: The flame should be bluish, almost invisible, approximately 3" long and narrow. Hold the torch at an angle to the edge of the sheet and "drag" the flame along the edge of the sheet. If the sheet is positioned horizontally, the torch should also be at a slight angle to the horizontal so that the heel of the flame is just below the untreated surface and the tip of the flame rises just above the treated surface. Alternatively, pieces can be flame polished two-at-a-time.

Leave the masking on the treated surface of one piece only. Then orient the pieces so the masking is sandwiched between them and both of the treated surfaces are facing inside. Line up the edges and flame polish.

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 Sterling sheet as is used with other acrylic sheets.

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

ACRYLITE Sterling sheet may not be suitable for use in some outdoor environments. Before using outdoors, contact CYRO's Technical Service department for more information.

For more details on the fabrication methods described above refer to the following publications available at www.cyro.com:

ACRYLITE FF Fabrication Brief	Literature ID #
# 2 Cutting with Circular Saws	1319 - 2
# 4 Drilling	1319 - 4
# 5 Routing	1319 - 5
# 6 Edge and Surface Finishing	1319 - 6
# 7 Line Bending	1319 - 7
# 8 Cementing	1319 - 8
# 10 Thermoforming	1319 - 9

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 judgment in the use of this versatile material and recommend that building codes be followed carefully to assure it is used properly.

Important Notice

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