

ACRYLITE® digital print Extruded Sheet



Product

ACRYLITE® digital print is a crystal clear acrylic sheet with enhanced adhesion properties for UV curable inks used in today's flatbed digital printers. This material's optical clarity ensures color accuracy and brilliance on every print. It is available in colorless and white, as well as a markerboard product or with a non-glare surface.

Application

The unique properties of ACRYLITE® digital print make it especially suitable for:

- POP displays/store fixtures
- Architectural design prints
- Retail signage
- Way-finding signs
- Exhibit trade show graphics
- Artwork & photography

Product Specification

Color	Color Number	Size	Thickness
Colorless / smooth	OM007	48" x 96" 60" x 96" 60" x 120"	.118" (3 mm) .177" (4.5mm) .220" (5.6mm)
Colorless / markerboard	OM007 MR1	48" x 96"	
Colorless / non-glare	OM007 AR	48" x 96"	
White / smooth	WM730	48" x 96" 48" x 120"	

Packaging

This material ships flat in special packaging that controls moisture and allows for long term storage prior to opening. The packaging should be kept sealed during storage to minimize warpage due to moisture absorption.

Masking

The masking protects the material during fabrication and allows quality checks of the printed sheet without removing the masking. The printing side has white poly masking and the non-printing side has clear poly masking and strip tape indicating to "print on other side".

Fabricating

This sheet can be fabricated using the same machining parameters and equipment that are recommended for use with ACRYLITE® acrylic sheet (refer to ACRYLITE® extruded fabrication briefs) except flame polishing. Also note that the markerboard MR1 coating cannot be thermoformed, line bent, or cemented. In some instances, better results can be obtained if the orientation of the printed surface is taken into account during fabrication.

Cleaning

This sheet can be cleaned with a solution of mild soap or detergent and lukewarm water or ACRIFIX® AC1010 cleaner. Use a clean soft cloth, applying only light pressure.

Storage

Skids of ACRYLITE® digital print are shipped with two layers of polyethylene film overwrap that protects the sheet from dirt and moisture. The overwrap should be left intact during storage to minimize warpage. Sheet must be stored horizontally to maintain flatness. Sheet surfaces should be kept free of saw chips and other debris which can penetrate the protective masking and cause indentations in the sheet. Also, it should not be stored near heat sources, as heat tends to soften and deform the sheet, or near any source of moisture, as that may lead to warpage.

Cementing

Methylene chloride-based solvent cements such as ACRIFIX® 1S0107, typically used for acrylic sheet fabrication, work well when cementing ACRYLITE® digital print. This permits the use of other acrylic products, including acrylic profiles, in conjunction with ACRYLITE® digital print. Cementing to the printed surface of the sheet is not recommended.

Cutting with Circular Saws

Conventional panel or table saws are recommended to cut ACRYLITE® digital print. 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 printed surface. If positioned so the teeth enter on the other surface, very slight chipping (about 1/64" in size) of the printed surface may occur. Also note, that the markerboard MR1 surface cannot be cemented to unless the coating is ground off.

Cutting with Lasers

Laser technology is being rapidly accepted by the industry for quickly and accurately cutting, welding, drilling, scribing, and engraving plastics. CO2 lasers focus a large amount of light energy on a very small area which is extremely effective for cutting complex shapes in acrylic sheet. The laser beam produces a narrow kerf in the plastic allowing for close nesting of parts and minimal waste. CO2 lasers vaporize the acrylic as they advance resulting in a clean polished edge but with high stress levels. Depending on the application, annealing acrylic sheet after laser cutting may be needed to minimize the chance of crazing during the service life of the part.

Flame Polishing

Flame polishing is not recommended for a digital print sheet. The flame will visually damage the printable surface of the sheet.

Mounting

ACRYLITE® digital print can be mounted to most rigid surfaces. Select the proper thickness of ACRYLITE® digital print to avoid unwanted distortion of the printed acrylic. Mechanical fasteners such as standoffs or button mounts may be used - **see the section below on Drilling**, and drill over-sized holes (2 times the bolt diameter) located at least 1.5 times the bolt diameter from the edge. Avoid over tightening the screws to prevent distortion of the printed acrylic.

Edge Finishing

Edge finishers will produce very smooth edges on this sheet. However, this may cause very slight chipping (about 1/64" in size) of the cured ink in printed materials. For most applications this will not be visible. The same depth of cut and feed settings as used with extruded sheet are recommended.

Drilling

It can be drilled with the same equipment that is used with ACRYLITE® extruded sheet. Modified drill bits designed for acrylics plastics produce the best results. A proper backing material such as plywood or another piece of acrylic should be used when drilling digital print. The backing material will help prevent chipping on the bottom surface. Rotational speeds from 500 - 1000 RPMs combined with feed rates in the 3 - 12 in/min range will usually provide good results.

Line Bending

It can be line bent quickly and easily using traditional line bending equipment. The sheet can be heated on the non-printed 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. Please consult with your printer manufacturer to determine if the ink is formable. Note that the markerboard MR1 coating cannot be thermoformed or line-bent or it will crack.

Thermoforming

Thermoforming to moderate draw ratios is possible. However, as the draw ratio increases, the printable surface becomes correspondingly thinner. This may compromise the final printed product. It is recommended that a few test samples be made first to evaluate the appearance of the part. Please consult with your printer manufacturer to determine if the ink is formable. Note that the markerboard MR1 coating cannot be thermoformed or line-bent or it will crack.

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 the digital print sheet as used with other acrylic sheet.

Technical Data

Test	Method	Typical Value
Tensile Strength	ASTM D-638	10,000 psi
Tensile Elongation @ Rupture	ASTM D-638	4.50%
Tensile Modulus	ASTM D-638	400,000 psi
Flexural Strength	ASTM D-790	17,000 psi
Flexural Modulus	ASTM D-790	480,000
Rockwell Hardness	ASTM D-785	M 93
Deflection Temperature (264 psi)	ASTM D-648	91°C
Izod Notched Impact Strength	ASTM D-256	0.4 ft-lb/in
Specific Gravity	ASTM D-792	1.19
Thermal Expansion	ASTM D-696	0.00004 in/in °F
Water Absorption (24 hr)	ASTM D-570	0.20%

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Fire Precautions

ACRYLITE® 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.

Compatibility

Like other plastic materials, ACRYLITE® sheet is subject to crazing, cracking or discoloration if brought into contact with incompatible materials. These materials may include cleaners, polishes, adhesives, sealants, gasketing or packaging materials, cutting emulsions, etc. See the Tech Briefs in this series for more information, or contact your ACRYLITE® sheet Distributor for information on a specific product.

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