

**ACRYLITE® LED optimized letter block**  
 WM51 for Backlighting, thick white acrylic



- Exterior corporate identity signage
- Interior retail signage & shelving
- Store fixture and POP displays

ACRYLITE® LED optimized letter block greatly reduces fabrication cost by reducing or eliminating labor steps such as sanding and painting or the application of a diffuser film, which are required when using materials with inferior diffusing properties.

Using ACRYLITE® LED optimized letter block eliminates the need to fabricate the aluminum light fixtures, thereby significantly reducing fabrication costs.

Available in a bright luminous white, ACRYLITE® LED optimized letter block allows you to go directly from machining to assembly, saving time and cost.

**Product**

ACRYLITE® LED optimized letter block is a specially formulated cast acrylic developed for backlighting and embedding LEDs within the thicker white letter block. Combining LEDs with ACRYLITE® LED acrylic makes for maximum efficiency and superior lighting technology especially in illuminated signs, store fixtures and exhibition booths.

ACRYLITE® LED offers a high degree of white opacity in indoor light and daylight. Its translucency has been optimized to offer maximum transmission paired with optimum light diffusion to eliminate unsightly hot spots and fluctuations in luminance.

**Properties**

ACRYLITE® LED optimized letter block offers the following characteristics:

- Glows brilliantly white and is extremely weatherable
- No LED hot spots due to optimum light diffusion
- High luminous efficiency
- Easy to machine and fabricate
- 100% recyclable

**Applications**

These properties make ACRYLITE® LED optimized letter block especially suitable in low profile lettering for:

- Push-through letters
- Trimless channel letters



If your design requires a secondary color, you can apply a translucent film to the sheet prior to machining which allows for a multitude of surface colors.

A third option for coloration can be achieved by adding a coating or film to the sides of the letters or graphics. Coating the sides of the letters could eliminate the halo effect. Depending on the color and opacity of the coating or film, blocking out the sides will increase the luminance of the letter face.

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## Product Specifications

Color	Color Number	Thickness	Transmission T D65
White	WM51	30mm (1.181)"	22%

## Machining

LEDs can be used to back light push through letters and can be embedded into routed cavities. Various LEDs have different lumen output and beam angle. Therefore, it is recommended when cutting grooves or hollow area on the reverse side of the application, to test cut at your desired depth and width and test the LED to ensure optimum light and diffusion output. Using a bright white, powder coated aluminum finish as your back plate or light box interior will reflect light towards and out the face of the letter. Aluminum is also a good conductor of heat which will be beneficial as a heat sink for the LEDs.

Backlighted wall/face thickness should not be reduced to less than .472".

Following this guideline will help ensure the light will properly diffuse.

Routing will change the lighting characteristics of the material. Diffusion will decrease and transmission will increase as your machining thins this material.

ACRYLITE® LED optimized letter block can be machined using the same methods as ACRYLITE® cast. The following fabrication guidelines are available online at [www.acrylite.co](http://www.acrylite.co)

- Fabrication tech brief #5 – Routing
- Fabrication tech brief #6 – Edge & Surface Finishing
- Fabrication tech brief #11 – Machining

For routed letters in illuminated signs, backlighting in furniture and store figures, the figures below show different variants of these applications:

Fig. 1.1 Backlighting with a thick sheet

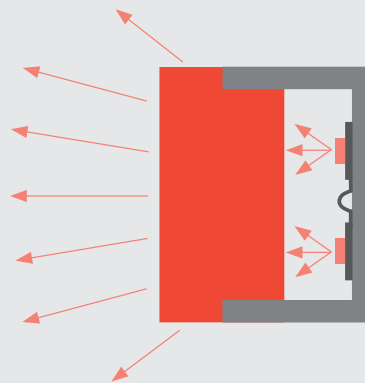


Fig. 1.2a Indirect Backlighting with routing

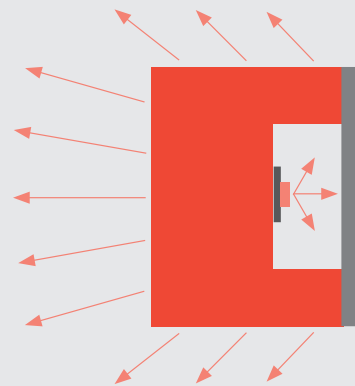
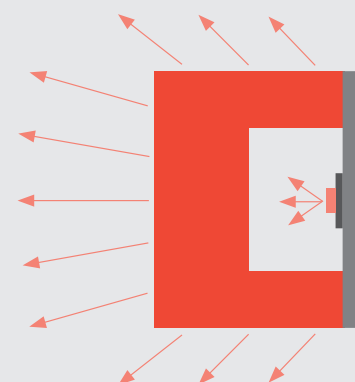



Fig. 1.2b Direct Backlighting with routing





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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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