



Cast Acrylic

Laser compatible PMMA craft plastic
Poly(methyl methacrylate), Acrylite®, Plexiglas®

Description and Overview

Cast acrylic is a versatile thermoplastic often used as a lightweight alternative to glass. It has smoother edges when laser cut compared to extruded acrylic, which leaves rougher edges and more debris when cut with a laser. Its excellent optical properties and resistance to impact make it an ideal material for applications where glass may shatter.

In addition to its suitability for laser cutting, cast acrylic can be engraved, glued, drilled, and easily shaped using heat. It has excellent weatherability and its resistance to UV damage combined with its attractive aesthetic make it a good fit for outdoor projects like signage.

Applications and Uses

Cast acrylic is fully CO2 laser compatible and may be used in laser cutter systems like Glowforge, Mira, Thunder, Trotec, Epilog, and others for a variety of custom laser projects.

- Signage: custom letters, shapes
- Engravings
- Custom jewelry
- Wall art
- Photo frames
- Intricate home decor
- Prototyping
- Toys & games



Laser compatible cast acrylic is available in clear, color, glitter, and marble pattern options.

Available sizes: Laser-ready 12" x 20", cut-to-size options available

Properties and Specifications

Property	Cast Acrylic
Specific Gravity	1.19
Water Absorption @ 24 hrs.	0.2%
Tensile Strength @ Yield (psi)	10,000
Light transmission	92%
Elongation at break	4.2%
Flexural strength (psi)	16,500
Hardness, Rockwell	M94
Refractive index	1.49
Maximum service temperature	180°F
Heat Deflection Temperature @ 264 psi	239°F
Affixable Properties	Chem / Mech

Properties are typical.
Chem is an abbreviation for chemically affixed with glues, chemicals, or adhesive.
Mech is an abbreviation for mechanically affixed bonding.
Field testing is recommended for any application.



Recommended Laser Cutter Settings¹

Machine	Watts	Material	Thickness	Power	Speed
Glowforge	--	Cast Acrylic	1/8"	Full	160
Glowforge	--	Cast Acrylic	1/4"	Full	110
Thunder	40W	Cast Acrylic	1/8"	90%	10 mm/s
Thunder	40W	Cast Acrylic	1/4"	90%	5 mm/s
Thunder	60W	Cast Acrylic	1/8"	90%	14 mm/s
Thunder	60W	Cast Acrylic	1/4"	90%	9 mm/s
Epilog Fusion	40W	Cast Acrylic	1/8"	100%	6
Epilog Fusion	40W	Cast Acrylic	1/4"	100%	7
Epilog Fusion	60W	Cast Acrylic	1/8"	100%	8
Epilog Fusion	60W	Cast Acrylic	1/4"	100%	2

¹The settings here are provided as suggestions only. Interactions between the laser cutter and cast acrylic may differ from one sheet to the next and will differ depending on many variables including the machine used, its wattage, the application, thickness of the material, and required depth and intricacy of cut. Testing of the material on a sample section or piece is recommended and can help fine tune settings for a smoother and more precise cut.

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WARNING: This product can expose you to chemicals including Ethyl acrylate, CAS 140-88-5, which are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.



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