



# Polycarbonate vs. Acrylic

Which Is Right for You?

## Properties

Though they share similar applications, acrylic and polycarbonate have differing properties, including impact strength, optical clarity, UV stability, fabrication methods, available finishes, performance, and cost.

### Impact Resistance

- Polycarbonate is virtually unbreakable, resisting impacts that would shatter glass or crack acrylic.
- Polycarbonate is 20-30 times stronger than acrylic.
- Acrylic is 10-17 times stronger than glass, but not as tough as polycarbonate.

### Clarity and Optical Properties

- Acrylic transmits up to 92% of visible light, providing a crystal-clear, glass-like appearance.
- Acrylic naturally resists yellowing outdoors.
- Polycarbonate transmits 86-88% of visible light and remains clear and glass-like.
- Outdoor polycarbonate requires UV-stabilized or coated grades.

### Cost and Availability

- Acrylic is generally less expensive than polycarbonate.
- Polycarbonate costs more upfront, but offers long-term savings in environments where damage and replacement are common.
- Both acrylic and polycarbonate are widely available in sheets, rods, and tubes. Acrylic offers more decorative finishes, while polycarbonate provides specialty performance options.

### Fabrication

- Acrylic is easily laser cut, flame polished, and solvent bonded.
- Polycarbonate cannot be laser cut, but can be routed or CNC machined.

## Applications and Uses

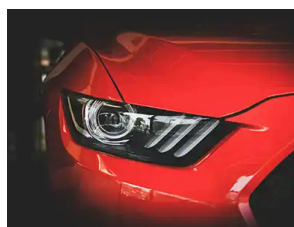
When deciding on acrylic or polycarbonate, consider your priorities: optical clarity, UV stability, and cost favor acrylic, while strength, impact resistance, and safety favor polycarbonate. Both are versatile, lightweight glass alternatives used across signage, glazing, aquariums, and protective barriers.

### Polycarbonate

- Security glazing for banks, prisons, and government facilities
- Riot shields
- Skylights
- Greenhouses
- Roofing panels and awnings
- Automotive glazing
- Aircraft windows
- Industrial machine guards, enclosures, and protective screens
- Protective eyewear

### Acrylic

- Displays
- Retail fixtures
- Backlight signage
- Skylight domes
- Wall partitions
- Decorative architectural panels
- Aquariums
- DIY projects - shelving, picture frames
- Storm window inserts
- Sneeze guards
- Bakery cases



Polycarbonate automotive glazing    Acrylic aquarium tank

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330 Commerce Circle  
Sacramento, CA 95815  
800-742-3444

[interstateplastics.com](http://interstateplastics.com)



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# Property Comparison Table

Property	Polycarbonate (PC)	Acrylic (PMMA)
Impact Strength	~20-30x stronger than acrylic	~10-17x stronger than glass
Flexibility	Slightly flexible	Rigid; brittle if cold-flexed
Optical Clarity	~86-88% transmission	~92% transmission, crystal clear
Scratch Resistance	Softer; needs hard coat	Harder surface; polishable
UV Resistance	Requires UV-stabilized grade	Naturally UV resistant
Temperature Resistance	Up to ~250°F	Up to ~180°F
Machinability	Saw, rout, drill only	Laser cut, flame-polish
Cost	Higher	Lower (~30-35% less)
Common Uses	Skylights, machine guards, shields	Aquariums, signage, displays

## FAQs: Polycarbonate vs Acrylic

### Is polycarbonate stronger than acrylic?

Yes. When comparing polycarbonate vs acrylic, polycarbonate is significantly stronger. It is virtually unbreakable and resists heavy impact, making it ideal for security glazing, riot shields, and machine guards.

### Which is more scratch-resistant: acrylic or polycarbonate?

Acrylic has a harder surface and is more scratch-resistant than polycarbonate. While polycarbonate requires a hard-coat finish for abrasion resistance, acrylic can often be polished back to restore clarity.

### Which is clearer: acrylic or polycarbonate?

Acrylic offers the brightest, crystal-clear look with up to 92% light transmission, while polycarbonate provides slightly less clarity but with much higher impact resistance.

### Is acrylic or polycarbonate better for outdoor signage?

For signage, acrylic is often considered the best material for outdoor signage due to its superior clarity, UV resistance, and polished appearance. Polycarbonate is a better choice when impact resistance and vandal protection are priorities.

### How do you cut acrylic and polycarbonate sheets?

Acrylic can be laser cut for smooth, polished edges. To cut polycarbonate sheets, the best approach is to use saws, routers, or CNC tools since laser cutting can cause melting.

### What is the difference between acrylic glass vs polycarbonate?

Acrylic glass provides maximum optical clarity and scratch resistance, while polycarbonate is the better option when impact strength and safety are the top concerns.