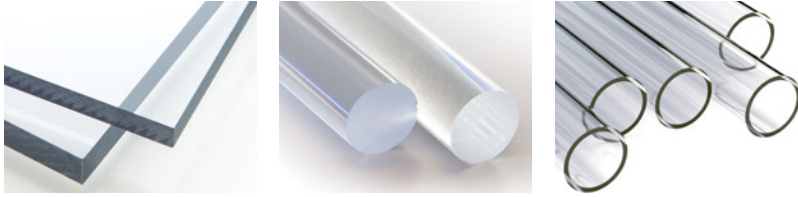


# Polycarbonate

Transparent, strong and stiff thermoplastic with outstanding impact resistance



Polycarbonate is a tough, transparent plastic material with outstanding strength, stiffness, and impact resistance. Polycarbonate's optical clarity makes it ideal for applications such as machine guards, signs, architectural glazing, face shields, skylights, and POP displays.

## Polycarbonate Material Options

**TUFFAK® Polycarbonate** – Tough and half the weight of plate glass, allows structural applications to require less support. Polycarbonate sheet thermoforms well, is easy to paint, and bonds well using solvent cements or adhesives. Polycarbonate sheet, rod, and tube are easy to machine and have excellent dimensional stability.

**General Purpose Polycarbonate** – Unfilled grades of polycarbonate exhibit glass-like transparency and extreme toughness. General purpose polycarbonate sheet has a polished surface, is UV stabilized, and is often used in glazing applications. It features outstanding impact strength and superior dimensional stability. Makrolon® GP polycarbonate has a 5-year warranty against breakage, making it cost effective for thermoformed parts and fabricated components.

**Machine Grade Polycarbonate** – This low stress polycarbonate is used in many applications that require heavily fabricated, tight tolerance parts such as electrical insulator components, manifolds, diaphragms, and semiconductor parts. Machine grade polycarbonate has high impact strength, high modulus of elasticity, outstanding dimensional stability, and good electrical properties.

**Glass-Filled Polycarbonate** – This glass-reinforced polycarbonate is used in many industrial applications where metals are commonly used. The addition of glass fibers provide improved strength and stiffness and lower the thermal expansion. Various amounts of glass fibers may be added from 10% - 40%. While glass-reinforced polycarbonate has less impact strength than standard grades, it is still tougher and more impact resistant than most other plastics and die cast aluminum.

## Polycarbonate is widely used for:

- Indoor and outdoor signs
- Architectural glazing—medical facilities, retail and government buildings, and transportation centers at risk from breakage and vandalism
- POP displays and graphic holders
- Skylights
- Face shields
- Machine guards, sight glasses
- Semiconductor machinery components
- Transparent manifolds

## Performance characteristics:

- Outstanding toughness
- Good optical clarity (non-machine grade or un-filled)
- Strong and stiff
- Good electrical insulation
- Easy to fabricate, machine, and thermoform
- Easy to bond with solvent cements

## Common brands:

- TUFFAK®
- Sustanat
- TECANAT®

## Available in:



Sheet

Rod

Tube

## TYPICAL PROPERTIES OF POLYCARBONATE

	UNITS	ASTM TEST	POLYCARBONATE	POLYCARBONATE 20% GLASS-FILLED
Tensile strength	psi	D638	9,500	16,000
Flexural modulus	psi	D790	345,000	800,000
Izod impact (notched)	ft-lbs/in of notch	D256	12.0 - 16.0	2.0
Heat deflection temperature @ 264 psi	°F	D648	270	295
Maximum continuous service temperature in air	°F		240	248
Water absorption (immersion 24 hours)	%	D570	0.15	0.16
Coefficient of linear thermal expansion	in/in/°Fx10 <sup>-5</sup>	D696	3.8	1.5

Values may vary according to brand name. Please ask your Curbell Plastics representative for more specific information about an individual brand.