Polycarbonate

Polycarbonate Film & Sheet

Polycarbonate is the answer when impact strength, optical clarity, or service temperature exceed what PVC and PETG can deliver. K&R stocks print-grade polycarbonate for membrane switches, safety glazing, faceshields, and high-performance signage.

Applications

- Instrument panel overlays and graphic panels for membrane switches
- Control panels, decals, labels, dial indicators, scales
- Backlit displays and menu boards
- Thermoforming, cold embossing, die-cut items
- Medical and specialty packaging
- Faceshields and safety glazing (Z87+ when specified)
- Outdoor signage requiring weatherability and UV resistance

Features & Benefits

High performance in applications requiring optimal thermal, optical, mechanical, and electrical characteristics.

Clarity, dimensional stability, and dielectric properties demanded by membrane switch and display markets.

Manufactured to exacting tolerances on gauge, gloss level, and surface texture.

Texture control and flatness print without need for special inks or pre-treatment.

Handles well in die-cutting, embossing, thermoforming, and hot stamping.

Unparalleled flame-retardant properties for displays.

Outstanding chemical resistance and actuation life in membrane switches.

Excellent weatherability, UV resistance, and chemical tolerance outdoors.

Print & Process Compatibility

Toner ✓ · HP Indigo ✓ (treated) · UV Inkjet ✓ · Solvent Inkjet ✓ · Screen ✓ · Offset ✓

AVAILABLE SURFACES, FINISHES & GAUGES

Surface / Finish	Description	Stock Gauges
Gloss / Gloss	Near-perfect visibility with high scratch resistance. Standard protective masking: cling/cling (.005–.007"), stick/cling (.010–.030").	.005, .007, .010, .015, .020, .030
Velvet / Gloss	Scratch resistant with optimal clarity.	Stock
Velvet / Matte	Scratch resistant with ease of printing.	Stock
Matte / Gloss, Suede / Gloss, Suede / Matte	Specialty surfaces available on special order.	Special order

TYPICAL PROPERTIES

Property	Typical Value	Test Method
Physical		
Specific Gravity	1.20	ASTM D 792

Property	Typical Value	Test Method
Area Factor	160 ft^2/lb·mil (0.833 m^2/kg/mm)	—
Water Absorption	0.32 % equilibrium	ASTM D 570
Pencil Hardness	Scratch hardness B	ASTM D 3363
Taber Abrasion (Pencil Haze)	45 %	ASTM D 1044
Mechanical		
Tensile Strength	Yield 8,700 psi (60 MPa) · Break 15,500 psi (72 MPa)	ASTM D 882
Elongation	150 %	ASTM D 882
Tensile Modulus	350,000 psi (2,413 MPa)	ASTM D 882
Tear Strength (Initial)	1.4–8 lb/mil (245–315 N/mm)	ASTM D 1004
Tear Strength (Propagation)	30–55 g/mil	ASTM D 1922
Impact Strength (30 mil)	120 in-lb (13.6 J)	Gardner
Burst Strength (1 mil Mullen)	40–45 psi	ASTM D 774
Fold Endurance (10 mil)	200 double folds	M.I.T.
Thermal		
Tensile Heat Distortion (50 psi)	302°F (150°C)	ASTM D 1637
Deflection Temperature (264 psi)	288°F (142°C)	ASTM D 648
Specific Heat	0.30 Btu/lb·°F (1.25 kJ/kg·K)	ASTM C 351
Thermal Conductivity	1.35 Btu·in/hr·ft^2·°F (0.19 W/m·K)	ASTM C 177
Coefficient of Thermal Expansion	3.75×10^{-5} in/in·°F (6.75×10^{-5} m/m·°C)	ASTM D 696
Optical		
Yellowness Index	<1.0	ASTM D 1925
Refractive Index	1.586	ASTM D 542
Haze (Gloss/Gloss)	0.5 %	ASTM D 1003
Light Transmission	88 – 91 %	ASTM D 1003
Electrical		
Dielectric Strength (10 mil, 23°C in oil)	1,700 V/mil (67 kV/mm)	ASTM D 149
Volume Resistivity	10^{17} ohm·cm	ASTM D 257
Surface Resistivity	10^{15} ohm/sq	ASTM D 257
Arc Resistance (tungsten)	120 sec	ASTM D 495
Flammability Rating	V-2 (.015"–.040")	UL 94

Properties reported here are typical of average lots. K&R Plastics, Inc. and its manufacturers make no representation or warranty that the material in any particular shipment will conform exactly to the values given. Unless otherwise noted, all tests run at 23°C (73°F) and 50% relative humidity. Job-specific qualification recommended for production runs — request a sample.