SERVICE, IT'S WHAT WE DELIVER

Polytech GP Polycarbonate Sheet

Polytech GP general purpose polycarbonate sheet is the material of choice for backlit sign faces demanding the structural integrity of polycarbonate in an economic package. Specially formulated to provide maximum impact resistance, superior forming and fabrication characteristics, and high heat resistance, Polytech GP is a highly versatile plastic for a wide variety of indoor sign and display applications.

COLORS & TEXTURES

Polytech GP is available in flat sheet and reels in either smooth or matte finish. Standard white translucent and custom colors are available upon request.

FABRICATION

Polytech GP can be drilled, routed, sawed, sheared, punched or die cut using the proper tools and techniques. High-speed carbide-tipped twist drills will give good results; drills must have sharp cutting edges to avoid "notching" the plastic. When shearing, use blades with a 45 degree angle or less. Most conventional mechanical fixing methods such as screws and rivets can be used; adhesive and solvent bonding are also possible. For proper mechanical fastening, always over-drill the hole by 1/16 of an inch to allow for expansion. Use an approved silicone sealant in the hole with the fastener to inhibit stress cracking at the hole.

CUTTING

Polytech GP can be cut with standard high-speed metal working tools; carbide-tipped blades are recommended for longer life. Circular saws with triple chip or beveled tooth type blades with about two teeth per inch are recommended, with blade speeds in the 6000 to 8000 rpm range. Band saws having 10 to 18 teeth per inch and blade speeds of 2500 to 3000 feet per minute should be adequate for smooth, clean cuts.

CEMENTING

Bonding Polytech GP to itself and to other plastics can be easily accomplished. Excellent results can be obtained with urethane adhesives including Hartel #17017 and Weld-On #55 by IPS. Silicones and solvent cementing may also be successfully used. (For more information, contact your sign supply distributor.)

PAINTING

Polytech GP can be easily painted and silkscreened using standard materials and techniques. Based on thorough testing by Spraylat and Akzo the following products are suggested. Follow the manufacturer's guidelines for proper painting and paint removal procedures. Always remove solvents from plastic sheet as quickly as possible to prevent solvent attack.

Brand	Spray	Screen	Cleaner
Grip-Flex®	T-2003	T-1003	T-4000
Grip-Flex ®	T-2004	T-1004 T-1007	
Lacryl®	400 Series	800 Series	206-T

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PRE-DRYING
The most critical step in the thermoforming process is proper drying of the sheet. The most efficient temperature range is 220-240º F.

Thickness in Inches	Drying Time
.093	4 hours
.118 / .125	5 hours
.150	8 hours
.177 / .187	12 hours
.236 / .250	24 hours

Drying time is dependent upon oven configuration, air circulation, sheet thickness etc. See chart for suggested starting points. Note: Always remove protective film when drying sheet at over 200°F.

THERMOFORMING
Polytech GP can be vacuum-formed on virtually all thermoforming equipment from high volume multi-station rotary machines to single-station or shuttle presses; pressure forming techniques have also been highly successful. Excellent forming detail can usually be obtained at sheet temperatures of 350° - 425° F; all normal tooling materials such as aluminum, epoxy and various hardwoods can be used.

TYPICAL PROPERTIES

PROPERTY	TEST METHOD	UNITS	DATA
Specific Gravity	D-792	g/cc	1.20
Tensile Modulus	D-638	(psi)	350,000
Tensile Strength @ Yield	D-638	(psi)	9,360
Elongation	D-638	%	100
Flexural Modulus	D-790	(psi)	391,000
Flexural Strength @ Yield	D-790	(psi)	15,000
Izod Impact (73°F)	D-256	ft-lbs/in	17.2
Falling Dart Impact	D-3029 (.177" samples at 73°F)	ft-lbs	960 (no break*)
HDT, 264 psi, unannealed	D-648	°F	270
Coefficient of Thermal Expansion	D-696	in/in/°F	3.8×10^{-5}
Hardness	D-785	Rockwell “R”	118

*This is the maximum output of the test equipment.

Note: These typical results are based on test procedures which are believed to be reliable. Due to variable conditions or methods of processing, No guarantees or warranties are expressed or implied including the implied warranty of merchantability and fitness for a parcicular purpose, nor any recommendations made to infringe on patents.

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