

## Optix® Acrylic (Extruded Acrylic Sheet)

Optix® is a continuously processed acrylic sheet that is crystal clear, impact resistant and weather resistant. It offers high molecular weight for superior thermoforming, bending and flame polishing. Acrylic sheet is one of the most durable thermoplastic materials for resisting scratches.

Optix® acrylic sheet is also offered with an abrasion resistant coating, on one or two sides, to protect from excessive scratching. It can be used continuously in a temperature range of 170-190°F. It begins to soften between 210-220°F and starts to melt between 300-315°F. Acrylic sheet can withstand temperatures down to -20°F without noticeable changes in properties.

Compared to a glass panel, Acrylic sheet reduces heat transfer and solar heat gain through the sheet. The R-value is .86, which describes the degree of insulation acrylic will give. It is between 2-10 times stronger than double strength glass. Half the weight of glass, and shatter resistant, acrylic sheet is easy to transport. Acrylic sheet offers crystal clear edge color, and excellent optical properties.

Acrylic sheet has a light transmission of 92% and a haze of 2% or less. It's recommended for both indoor and outdoor use. It is able to withstand prolonged exposure to the sun and the elements. Acrylic sheet filters out between 80-90% of the UV light within the damaging wavelength area of 250-400 nanometers.

Property	ASTM Test Method	Units	Optix® Acrylic
<b>Physical</b>			
Specific Gravity	D-792	g/cc	1.19
Optical Refractive Index	D-542		1.49
Light Transmittance (sample thickness .100")	D-1003	%	92
Total Haze		%	2
Sound Transmission (.125" thickness)	E 90-70 E 413	db	27
Water Absorption	D-570	% By Weight	.40
Shrinkage	D-702	%	.42
		Shrinkage	.33
<b>Mechanical</b>			
Tensile Strength, Maximum	D-638	psi	10,100
Tensile Elongation, Maximum	D-638	%	5.1
Modulus of Elasticity	D-638	psi	431,000
Flexural Strength, Maximum	D-790	psi	14,600
Izod Molded Notch at 73° F	D-256-56	ft-lbs/in	.4
Izod Milled Notch at 73° F		.28	
Tensile Impact Strength	D-1822	ft-lbs/in <sup>2</sup>	20
Abrasion Resistance	D-1044	Haze, %	2
0 cycles		Haze, %	15
10 cycles		Haze, %	30
50 cycles		Haze, %	50
200 cycles			
Rockwell Hardness (sample thickness .250")	D-785		M93

Property	ASTM Test Method	Units	Optix® Acrylic
<b>Thermal</b>			
Maximum Recommended Continuous Service Temperature		°F	170-190
Softening Temperature		°F	210-220
Melting Temperature		°F	300-315
Deflection Temperature Load, Unannealed 3.6°F/minute, 264 psi 3.6°F/minute, 66 psi	D-648	°F °F	190 205
Coefficient of Thermal Expansion -40°F -20°F 0°F 20°F 40°F 60°F 80°F 100°F	D-696	in/in/°F x 10 <sup>-5</sup>	2.7 2.9 3.1 3.2 3.4 3.6 3.9 4.3
Thermal Conductivity	C-177	BTU(hr)(ft <sup>2</sup> )(°F)/in	.9
Flammability (Burning Rate) @ .060" thick @ .236" thick	D-635	in/minute	1.019 .318
Smoke Density Rating, @ .236" thick	D-2843-77	%	.36
Self-Ignition Temp, @ .236" thick	D-1929	°F	833
Flame Spread Index/ Smoke Developed Index	E-84-86	.375" .236"	110 115
<b>Chemical</b>			
Resistance to Stress - Critical Craze Stress to: Isopropyl Alcohol Lacquer Thinner Toluene Solvesso 100	ARTC modification of MIL-P-6997	psi psi psi psi	900 500 1,300 1,600

*NOTE: The information contained herein are typical values intended for reference and comparison purposes only. They should NOT be used as a basis for design specifications or quality control. Contact us for manufacturers' complete material property datasheets. All values at 73°F (23°C) unless otherwise noted.*