

Plexite[®] Specs

The image features a collection of clear, transparent Plexite specimens. In the foreground, there is a rectangular block with a beveled top edge and a cylindrical rod. Behind them, several other cylindrical rods of varying diameters and lengths are visible, some in sharp focus and others blurred. The background is a solid, light blue color, which makes the clear plastic pieces stand out. The overall composition is clean and professional, typical of a technical product catalog.

Plexite®

Product Specs

Product Description

Plexite® is a scientifically advanced cell cast manufactured acrylic sheet produced by bulk polymerization.

More specifically, Plexite® sheets are monolithically cast from pure 100% methacrylate (MMA) using state-of-the-art equipment and cutting-edge processes. The end result is an acrylic sheet that is easy to handle and process while also offering excellent optical clarity and low stress levels.

More about Plexite®

This ground-breaking acrylic sheet is suited for a variety of applications due to its virtual distortion-free clarity. In fact, it offers the optical quality and light stability of acrylic resin in a crystal clear, lightweight, rigid and weather-resistant thermoplastic sheet. Plexite® is also resistant to breakage and dimensionally stable. It can be easily machined, sawed, heat-formed and cemented.

The quality of Plexite® is so high that it carries an industry-leading 10-year limited warranty on light transmission. Contact us via the contact page on this website to request a complete printout of the warranty.

Applications

- Aquariums
- Underwater windows & panels
- Submersible windows & port holes
- Displays
- Sight glass
- Projection screens
- Furniture
- Architectural applications
- Scientific applications
- Optical lenses
- Hyperbaric chambers
- Vacuum & Bio-safety chambers
- Fountains
- And more

Physical Characteristics

Dimensional Stability

Plexite® does expand and contract due to temperature and humidity changes. It does NOT shrink with age as some acrylic sheets do. Plexite® does experience some shrinkage when it is heated to forming temperature, but then its post-forming stability is excellent.

Rigidity

Plexite® is more rigid than older plastics such as acetates, polycarbonates and vinyls but it is not as rigid as glass or metal. You can expect acrylic sheets like Plexite® under wind load to bow and foreshorten as a result of deflection. For this reason, with glazing installations the maximum wind load and the size of the window must be considered when determining the appropriate thickness of a Plexite® panel. To increase rigidity and minimize deflection, Plexite® can be formed into a corrugated or domed shape.

Weatherability

- Excellent clarity & UV properties
- Excellent weatherability – doesn't yellow or crack
- High Impact Resistant
- Stronger than glass (17X) and concrete (4X)
- Can be engineered to support weight
- UVT available

Plexite® Product Specs

Plexite® cast acrylic sheet sizes

Over Dimensional Laminated

mm	in	197x122 (5m x 3.1m)	248x122 (6.3m x 3.1m)	256X118 (6.5m x 3m)	275x122 (7m x 3.1m)	374x126 (9.5m x 3.2m)	590x133 (15m x 3.4m)
215.900	8.500	x	x	x	x	x	x
228.600	9.000	x	x	x	x	x	x
241.300	9.500	x	x	x	x	x	x
254.000	10.000	x	x	x	x	x	x
266.700	10.500	x	x	x	x	x	x
279.400	11.000	x	x	x	x	x	x
292.100	11.500	x	x	x	x	x	x
304.800	12.000	x	x	x	x	x	x
317.500	12.500	x	x	x	x	x	x
330.200	13.000	x	x	x	x	x	x
342.900	13.500	x	x	x	x	x	x
355.600	14.000	x	x	x	x	x	x
368.300	14.500	x	x	x	x	x	x
215.900	15.000	x	x	x	x	x	x
228.600	15.500	x	x	x	x	x	x
241.300	16.000	x	x	x	x	x	x
254.000	17.000	x	x	x	x	x	x
266.700	18.000	x	x	x	x	x	x
279.400	19.000	x	x	x	x	x	x
292.100	20.000	x	x	x	x	x	x
304.800	21.000	x	x	x	x	x	x
317.500	22.000	x	x	x	x	x	x
330.200	23.000	x	x	x	x	x	x
342.900	24.000	x	x	x	x	x	x
355.600	25.000	x	x	x	x	x	x
368.300	26.000	x	x	x	x	x	x
685.800	27.000	x	x	x	x	x	x
711.200	28.000	x	x	x	x	x	x
736.600	29.000	x	x	x	x	x	x
762.000	30.000	x	x	x	x	x	x

Plexite® Product Specs

Acrylic Physical Properties

Property ^(a)	ASTM Method	Typical Value (.236" Thickness) ^(b)	
Mechanical			
Specific Gravity	D 792	1.19	
Tensile Strength	D 638	10,000 psi	(69 M Pa)
Elongation, Rupture		4.2%	
Modulus of Elasticity		400,000 psi	(2800 M Pa)
Flexural Strength (Rupture)	D 790	16,500 psi	(114 M Pa)
Modulus of Elasticity		475,000 psi	(3300 M Pa)
Compressive Strength (Yield)	D 695	18,000 psi	(124 M Pa)
Modulus of Elasticity		430,000 psi	(2960 M Pa)
Shear Strength	D732	9,000 psi	(124 M Pa)
Impact Strength		0.4 ft. lbs/in of notch	
Izod Milled Notch	D 256	(21.6 J/m of notch)	
Rockwell Hardness	D785	M-94	
Barcol Hardness	D 2583	49	
Residual Shrinkage ^(c) (Internal Strain)	D 702	2%	
Optical (Clear Material)			
Refractive Index	D 542	1.49	
Light Transmission, Total	D 1003	92%	
UV Transmission		0 at 320 nanometers	
Haze		Less than 1%	
Thermal			
Forming Temperature	—	340-380°F (170-190°C)	
Deflection Temperature under load, 264 psi	D 648	210°F (99°C)	
Vicat Softening Point	D 1525	239°F (115°C)	
Maximum Recommended Continuous Service Temperature	—	180°F ^(d) (82°C)	
Coefficient of Linear Thermal Expansion	D 696	0.000040 in./in.-°F (0.000072 m/m-°C)	
Coefficient of Thermal Conductivity (k-Factor)	Cenco-Fitch	1.3 BTU/(Hr) (Sq. Ft.) (°F/in.) (0.19 w/m-k)	
Flammability (Burning Rate 3mm thickness)	D635	1.2 in./min. (30.5 mm/min.)	
Self-Ignition Temperature	D 1929	910°F (490°C)	
Specific Heat @ 77°F	—	0.35 BTU/(lb.) (°F) (1470 J/Kg-k)	
Smoke Density Rating (3mm thickness)	D 2843	11.4%	
Electrical			
Dielectric Strength			
Short Time (0.125"-thickness)	D 149	430 volts/mil (17 KV/mm)	
Dielectric Constant			
60 Hertz	D 150	3.5	
1,000 Hertz		3.2	
1,000,000 Hertz		2.7	
Dissipation Factor			
60 Hertz	D 150	0.06	
1,000 Hertz		0.04	
1,000,000 Hertz		0.02	
Volume Resistivity	D 257	1.6 x 10 ¹⁶ ohm-cm	
Surface Resistivity	D 257	1.9 x 10 ¹⁶ ohms	
Water Absorption			
24 hrs @ 73°F	D 570	0.2%	
Weight Gain during Immersion		0.2%	
Soluble Matter Lost		0.0%	
Water Absorbed		0.2%	
Dimensional Change during Immersion		0.2%	
Long Term Water Absorption			
Weight Gain during Immersion	D 570		
7 days		0.5%	
14 days		0.6%	
21 days		0.8%	
35 days		1.0%	
48 days		1.1%	
Odor	—	None	
Taste	—	None	

- Notes: (a) Typical values: should not be used for specification purposes
(b) Values shown are for 6mm thickness unless noted otherwise. Some values will change with thickness.
(c) Difference in length and width, as measured at room temperature, before and after heating above 300°F.
(d) It is recommended that temperatures not exceed 180°F for continuous service, or 200°F for short, intermittent use.

Plexite® Product Specs

E > 30 days of constant exposure with no damage. Plastic may even tolerate chemical for years.

G > Little or no damage after 30 days of constant exposure to the reagent.

F > Some effect after 7 days of constant exposure to the reagent. Solvents may cause softening, and swelling.

N > Not recommended for continuous use. Immediate damage may occur such as severe crazing, cracking, or permeation losses.



Chemical	Conditions at 20°C (68°F)	Conditions at 50°C (122°F)
Acetaldehyde	G	F
Acetamide, saturated	E	E
Acetic Acid, 5%	E	G
Acetic Acid, 50%	N	N
Acetic Acid, glacial	N	N
Acetic Anhydride	N	N
Acetone	N	N
Acetonitrile	N	N
Acrylonitrile	N	N
Adipic Acid	G	F
Alanine	E	G
Allyl Alcohol	N	N
Aluminum Hydroxide	G	F
Aluminum Salts	E	E
Amino Acids	E	G
Ammonia	G	F
Ammonium Acetate, saturated	E	E
Ammonium Glycolate	E	E
Ammonium Hydroxide, 50%	E	G
Ammonium Hydroxide, 5%	E	E
Ammonium Oxalate	E	G
Ammonium Salts	E	E
n-Amyl Acetate	N	N
Amyl Chloride	E	E
Aniline	N	N
Aqua Regia	F	N
Benzaldehyde	F	N
Benzene	N	N
Benzoic Acid, saturated	E	G
Benzyl Acetate	N	N
Benzyl Alcohol	N	N
Bromine	N	N
Bromobenzene	N	N
Bromoform	N	N
Butadiene	G	G
n-Butyl Acetate	N	N
n-Butyl Alcohol	F	N

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Chemical	Conditions at 20°C (68°F)	Conditions at 50°C (122°F)
i-Butyl Alcohol	F	N
t-Butyl Alcohol	F	N
Butyric Acid	N	N
Butyl Chloride	N	N
Calcium Hydroxide, conc.	G	G
Calcium Hypochlorite, saturated	G	F
Cellosolve Acetate	G	F
Carbazole	N	N
Carbon Disulfide	F	N
Carbon Tetrachloride	N	N
Cedarwood Oil	F	N
Chlorine, 10%, in Air	E	E
Chlorine, 10%, moist	E	G
Chloroacetic Acid	N	N
p-Chloroacetophenone	N	N
Chlorobenzene	N	N
Chloroform	N	N
Chromic Acid, 10%	E	E
Chromic Acid, 50%	F	N
Cinnamon Oil	N	N
Citric Acid, 10%	E	E
Cresol	N	N
Cyclohexane	N	N
Cyclohexanone	N	N
Cyclopentane	G	F
Decalin	F	N
n-Decane	F	N
o-Dichlorobenzene	N	N
p-Dichlorobenzene	N	N
Diethyl Benzene	N	N
Diethyl Ether	F	N
Diethyl Ketone	N	N
Malonate	F	F
Diethylene Glycol	E	E
Diethylene Glycol Ethyl Ether	E	G
Dimethyl Formamide	N	N
Sulfoxide	N	N

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Chemical	Conditions at 20°C (68°F)	Conditions at 50°C (122°F)
1, 4-Dioxane	N	N
Dipropylene Glycol	E	E
Diethylamine	G	G
Diacetone Alcohol	N	N
1, 2-Dichloroethane	N	N
2, 4-Dichlorophenol	N	N
Dimethyl Acetamide	E	E
Dioxane	N	N
Dibutyl Phthalate	F	N
Diethyl Phthalate	F	N
Ethanol	F	N
Ether	F	N
Ethyl Acetate	N	N
Ethyl Alcohol (Absolute)	G	F
Ethyl Alcohol, 40%	E	E
Ethyl Benzene	N	N
Ethyl Benzoate	N	N
Ethyl Butyrate	N	N
Ethyl Chloride, liquid	N	N
Ethyl Cyanoacetate	N	N
Ethyl Lactate	F	N
Ethylene Chloride	N	N
Ethylene Glycol	E	E
Ethylene Glycol Methyl Ether	E	G
Ethylene Oxide	E	G
Fatty Acids	E	E
Fluorides	N	N
Fluorine	N	N
Formaldehyde, 10%	E	E
Formaldehyde, 40%	E	G
Formic Acid, 35%	E	E
Formic Acid, 50%	G	G
Formic Acid, 98%-100%	N	N
Freon, TF	G	F
Fuel Oil	G	F
Gasoline	G	F
Acetic Acid, glacial	N	N

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Chemical	Conditions at 20°C (68°F)	Conditions at 50°C (122°F)
Glycerine	E	E
Gluteraldehyde	G	F
n-Heptane	E	E
Hexane	E	E
Hydrochloric Acid, 15%	E	E
Hydrochloric Acid, 20%	E	E
Hydrochloric Acid, 35%	E	G
Hydrochloric Acid, 45%	F	F
Hydrochloric Acid, 48%	N	N
Hydrogen Peroxide, 3%	E	E
Hydrogen Peroxide, 30%	E	E
Hydrogen Peroxide, 90%	N	N
Hydrazine	N	N
Iodine Crystals	N	N
Isobutyl Alcohol	F	F
Isopropyl Acetate	N	N
Isopropyl Alcohol	N	N
Isopropyl Benzene	N	N
Isopropyl Ether	F	N
Jet Fuel	G	F
Kerosene	G	G
Lactic Acid, 35%	E	E
Lactic Acid, 85%	E	E
Lacquer Thinner	N	N
Mercury	E	E
Methoxyethyl Oleate	E	E
Methyl Alcohol	F	N
Methyl Ethyl Ketone	N	N
Methyl Isobutyl Ketone	N	N
Methyl Propyl Ketone	N	N
Methylene Chloride	N	N
Mineral Oil	E	E
2-Methoxyethanol	F	N
Methyl-t-Butyl Ether	G	F
Methyl Acetate	N	N
Mineral Spirits	F	N
Nitric Acid, 1-10%	E	E

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Chemical	Conditions at 20°C (68°F)	Conditions at 50°C (122°F)
Nitric Acid, 50% G F	G	F
Nitric Acid, 70% F N	F	N
Nitrobenzene N N	N	N
Nitromethane N N	N	N
n-Octane E E	E	E
Orange Oil E E	E	E
Oxalic Acid	E	E
Ozone E E	E	E
Perchloric Acid N N	N	N
Perchloroethylene F N	F	N
Phenol, crystals N N	N	N
Phenol, liquid N N	N	N
Phosphoric Acid, 85% F N	F	N
Phosphoric Acid, 1-5% E E	E	E
Picric Acid N N	N	N
Pine Oil E G	E	G
Potassium Hydroxide, 1% E E	E	E
Potassium Hydroxide, conc. E G	E	G
Propane Gas E E	E	E
Propionic Acid N N	N	N
Propylene Glycol E E	E	E
Propylene Oxide N N	N	N
Resorcinol, saturated N N	N	N
Resorcinol, 5% G F	G	F
Salicylaldehyde G F	G	F
Salicylic Acid, powder F F	F	F
Salicylic Acid, saturated F F	F	F
Salt Solutions, metallic	E	E
Silicone Oil E E	E	E
Silver Acetate E E	E	E
Silver Nitrate E E	E	E
Sodium Acetate, saturated E E	E	E
Sodium Chloride E E	E	E
Sodium Hydroxide, 1% E E	E	E
Sodium Hydroxide, 50% to saturated E E	E	E
Sodium Hypochlorite, 15% E E	E	E
Stearic Acid, crystals	E	E

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Chemical	Conditions at 20°C (68°F)	Conditions at 50°C (122°F)
Sulfur Dioxide, wet or dry N N	N	N
Sulfur Salts G G	G	G
Sulfuric Acid, 1-6%	E	E
Sulfuric Acid, 20% E E	E	E
Sulfuric Acid, 60% G G	G	G
Sulfuric Acid, 98% N N	N	N
Tartaric Acid E E	E	E
Tetrahydrofuran N N	N	N
Thionyl Chloride N N	N	N
Toluene N N	N	N
Tributyl Citrate F N	F	N
Trichloroethane N N	N	N
Trichloroethylene N N	N	N
Triethylene Glycol E E	E	E
Tripropylene Glycol E E	E	E
Trichloroacetic Acid N N	N	N
1, 2, 4 Trichlorobenzene N N	N	N
2, 2, 4 Trimethylpentane G F	G	F
Tris Buffer E E	E	E
Turpentine F N	F	N
Undecyl Alcohol N N	N	N
Urea E E	E	E
Vinylidene Chloride N N	N	N
Xylene N N	N	N
Zinc Stearate E	E	E