Technical Data

Trident Plastics Inc.

Trizod™ OP FG

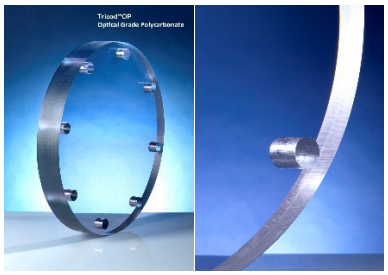
Optical Window Grade FDA Compliant Polycarbonate Plate

Product Description

Trizod™ OP FG is an Optically Clear Polished, FDA compliant polycarbonate sheet specially engineered for superior optical performance. Trizod™ OP FG is designed for applications requiring high optics, excellent impact strength, outstanding clarity, and FDA compliance. Trident's proprietary annealing process improves characteristics such as strength, chemical resistance, and increases dimensional stability over a wide temperature range which allows extensive machining to ensure tight tolerances.

Characteristics
- Excellent impact resistance
- Excellent dimensional stability
- Excellent optical clarity
- Good electrical properties
- Good heat resistance

Applications
- Windows
- Site glasses
- Machine guards
- Manifolds
- Instrument components
- Control panels



General

Annealed Plate: .250 through 2.500" thick Plate sizes: 24x48 • 48x96

Optically Clear Polished Finish • 4 mil Adhesive PE Film Masked

Agency ratings: ASTM D3935 PC0150 • Complies with FDA food additive regulations (21 CFR 177.1580).

Standard color: Transparent Clear

Physical	Nominal Value	Unit	Nominal Value	Unit	Test Method
Density / Specific Gravity	0.043	lb/in^3	1.200	g/cm^3	ASTM D1505
Water Absorption, Immersion at 73°F (23°C):					ASTM D570
24 Hours 73ºF	0.15	%	0.15	%	
Equilibrium 73ºF	0.35	%	0.35	%	
Equilibrium 212ºF	0.58	%	0.58	%	
Optical	**Nominal Value**	**Unit**	**Nominal Value**	**Unit**	**Test Method**
Transmittance at 0.125-in (3.2-mm) Thickness	88.00	%	88.00	%	ASTM D1003
Haze at 0.100 Thickness	1.00	%	1.00	%	ASTM D1003
Refractive Index	1.586		1.586		ASTM D542
Mechanical	**Nominal Value**	**Unit**	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus					
--[4]	335000	psi	2312	Mpa	ASTM D638
--	341000	psi	2353	Mpa	ISO 527-1/1
Tensile Strength					
Yield[5]	8990	psi	62	Mpa	ASTM D638
Yield	9140	psi	63	Mpa	ISO 527-2/50
Break[5]	9860	psi	68	Mpa	ASTM D638
Break	10900	psi	75	Mpa	ISO 527-2/50

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Tensile Elongation					
Yield [5]	7	%	7	%	ASTM D638
Yield	6	%	6	%	ISO 527-2/50
Break [5]	140	%	140	%	ASTM D638
Break	140	%	140	%	ISO 527-2/50
Flexural Modulus					
1.97 in Span [6]	339000	psi	2339	Mpa	ASTM D790
-- [7]	334000	psi	2305	Mpa	ISO 178
Flexural Stress					
-- [7, 8]	13800	psi	95	Mpa	ISO 178
Yield, 1.97 in Span [6]	14100	psi	97	Mpa	ASTM D790
Taber Abrasion Resistance (1000 Cycles, 1000 g,	10	mg	10	mg	ASTM D1044

Impact	Nominal Value	Unit	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength [9] (73°F)	45	ft·lb/in²	95	kJ/m²	ISO 179/1eA
Notched Izod Impact					
-22°F	2.6	ft·lb/in	139	J/m	ASTM D256
73°F	17	ft·lb/in	908	J/m	ASTM D256
-22°F [10]	5.7	ft·lb/in²	12	kJ/m²	ISO 180/1A
73°F [10]	33	ft·lb/in²	70	kJ/m²	ISO 180/1A
Unnotched Izod Impact (73°F)	60	ft·lb/in	3204	J/m	ASTM D4812
Instrumented Dart Impact					ASTM D3763
73°F, Energy at Peak	566	in·lb	64	J	
73°F, Total Energy	575	in·lb	65	J	
Gardner Impact (73°F)	1500	in·lb	1500	J	ASTM D3029
Tensile Impact Strength [11]	300	ft·lb/in²	630	kJ/m²	ASTM D1822

	Nominal Value	Unit	Nominal Value	Unit	Test Method
Rockwell Hardness	118	R scale	118	R scale	ASTM D785
	70	M scale	70	M scale	ASTM D785

Thermal	Nominal Value	Unit	Nominal Value	Unit	Test Method
Deflection Temperature Under Load					
66 psi, Unannealed, 0.126 in	275	°F	135	ºC	ASTM D648
66 psi, Unannealed, 0.252 in	279	°F	137	ºC	ASTM D648
264 psi, Unannealed, 0.126 in	255	°F	124	ºC	ASTM D648
264 psi, Unannealed, 0.252 in	270	°F	132	ºC	ASTM D648
264 psi, Unannealed, 0.157 in, 2.52 in Span [10]	255	°F	124	ºC	ISO 75-2/Af
Vicat Softening Temperature					
--	309	°F	154	ºC	ASTM D1525 [12]
--	284	°F	140	ºC	ISO 306/B120
--	291	°F	144	ºC	ISO 306/B50
Ball Pressure Test (163 to 171°F)	Pass				IEC 60695-10-2
CLTE					
Flow : -40 to 104°F	3.40E-05	in/in/°F	6.20E-05	cm/cm/°C	ASTM E831
Flow : -40 to 203°F	3.80E-05	in/in/°F	6.80E-05	cm/cm/°C	ASTM E831
Flow : -40 to 104°F	3.30E-05	in/in/°F	6.00E-05	cm/cm/°C	ISO 11359-2
Transverse : -40 to 104°F	3.20E-05	in/in/°F	5.70E-05	cm/cm/°C	ASTM E831
Transverse : -40 to 104°F	3.30E-05	in/in/°F	6.00E-05	cm/cm/°C	ISO 11359-2

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Specific Heat	0.299	Btu/lb/°F	1250	J/kg/°C	ASTM C351
Thermal Conductivity	1.3	Btu·in/hr/ft²/°F	0.19	W/m/K	ASTM C177
RTI Elec	266	°F	130	ºC	UL 746B
RTI Imp	266	°F	130	ºC	UL 746B
RTI Str	266	°F	130	ºC	UL 746B
Electrical	**Nominal Value**	**Unit**	**Nominal Value**	**Unit**	**Test Method**
Volume Resistivity	> 1.0E+17	ohms·cm	> 1.0E+17	ohms·cm	ASTM D257
Dielectric Strength (3.20 mm, in Air)	380	V/mil	15	kV/mm	ASTM D149
Dielectric Constant					ASTM D150
60 Hz	3.17		3.17		
50 kHz	3.17		3.17		
1 MHz	2.96		2.96		
Dissipation Factor					ASTM D150
50 Hz	9.00E-04		9.00E-04		
60 Hz	9.00E-04		9.00E-04		
1 MHz	0.01		0.01		
Comparative Tracking Index (CTI)	PLC 2		PLC 2		UL 746A
High Amp Arc Ignition (HAI) [13]	PLC 1		PLC 1		UL 746A
High Voltage Arc Resistance to Ignition (HVAR)	PLC 2		PLC 2		UL 746A
Hot-wire Ignition (HWI)	PLC 2		PLC 2		UL 746A
Flammability	**Nominal Value**	**Unit**	**Nominal Value**	**Unit**	**Test Method**
Flammability Rating	HB @.060		HB @.060		UL94

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Chemical Resistance

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Acetone	Not resistant	Hydrochloric acid, aqueous solution 36'	Limited Resistance
Ammonia solution 10%	Not resistant	Hydrofluoric acid, 10%	Resistant
Benzene	Not resistant	Isopropanol	Resistant
Boric acid, aqueous solution 10%	Resistant	Methanol	Not resistant
Diesel oil	Resistant	Nitric acid, aqueous solution 10%	Resistant
Ethanol, 96%	Limited Resistance	Silicone Oil	Resistant
Ethylene chloride	Not resistant	Sulphuric acid, aqueous solution 2%	Resistant
Formaldehyde, aqueous solution 30%	Resistant	Sulphuric acid, concentrated 98%	Not resistant
Glycerin	Resistant	Triethanolomine	Not resistant
Glycol	Resistant	Trichloroethylene	Not resistant

* This information is based on average resin value specifications and is only to assist and advise you on the current technical knowledge, it is given without obligations or liability.

Standard sizes and approximate weight (lbs) per sheet

Thickness	Lbs / Sq Ft	24 x 48	48 x 48	48 x 72	48 x 96	Thickness Range
.250"	1.69	14	27	41	54	.250" - .275"
.354"	2.39	19	38	57	76	.299" - .330"
.375"	2.53	20	41	61	81	.375" - .420"
.500"	3.38	27	54	81	108	.500" - .550"
.625"	4.22	34	68	101	135	.625" - .700"
.708"	4.78	38	76	115	153	.708" - .750"
.750"	5.06	41	81	122	162	.750" - .825"
.875"	5.91	47	95	142	189	.875" - .944"
1.00"	6.75	54	108	162	216	1.00" - 1.100"
1.125"	7.59	61	122	182	243	1.125" - 1.180"
1.25"	8.44	68	135	203	270	1.250" - 1.370"