

PSS-3000 Optical Sheet



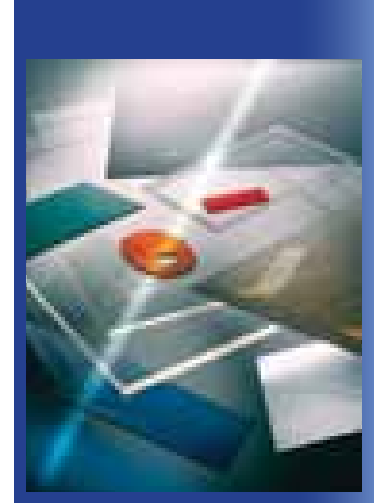
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 **ESP**[™] *Engineered Sheet Products*

PSS-3000 Optical Sheet | Overview

Advanced Technology for All-Around Performance

PSS-3000 optical sheet is produced using a technologically advanced thermoset resin and offers excellent optical properties, rugged durability and lightweight performance, as well as outstanding chemical resistance, mechanical properties and thermal stability. PSS-3000 sheet combines the optical quality and chemical resistance of glass with the lightweight performance of plastics.



Distortion-Free Optics

One of the most distinctive attributes of PSS-3000 sheet is its optical performance.

- High light transmission
- Low haze value

Rugged Durability

Few other engineered plastics can match the chemical and abrasion resistance offered by PSS-3000 sheet products.

- Withstands very hot or cold temperatures
- Virtually unaffected by most organic and inorganic chemicals

PERFORMANCE COMPARISON


	PSS-3000	ACRYLIC	POLYCARBONATE	GLASS
Optical Quality	● ●	● ●	⊘	● ● ●
Abrasion Resistance	● ●	⊘	⊘	● ● ●
Chemical Resistance	● ●	⊘	⊘	● ● ●
Lightweight / Low Density	● ●	● ● ●	● ● ●	⊘
Impact Resistance	●	●	● ● ●	⊘

● ● ● Superior ● ● Excellent ● Good ⊘ Poor

PROPERTIES

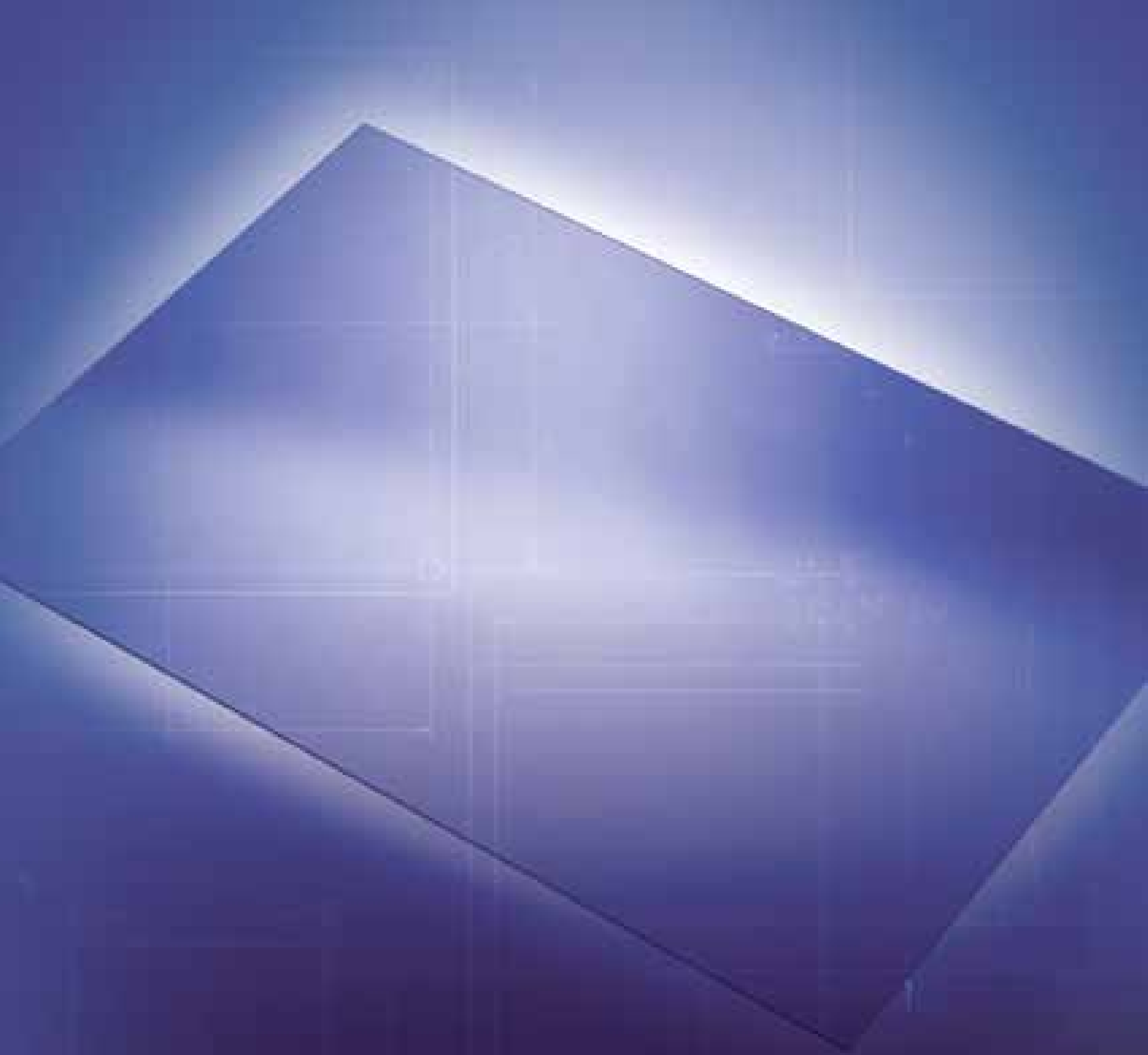
	TEST CONDITIONS	UNITS	STANDARDS	PSS-3000
OPTICAL Tests conducted on 3.0 mm thick sheet				
Luminous Transmittance		%		92
Haze		%		0.03
Yellowness Index			ASTM E313	0.77
Refractive Index, n_e	23°C, 546 nm			1.50
Abbe Value				57
MECHANICAL Tests conducted on 1.0 mm thick sheet				
Tensile Stress at Break	50% RH / 23°C	MPa	ASTM D638-08	51
Tensile Elongation at Break	50% RH / 23°C	%	ASTM D638-08	14
Tensile Modulus	50% RH / 23°C	MPa	ASTM D638-08	1,582
Tensile Yield Stress	50% RH / 23°C	MPa	ASTM D638-08	44
Compressive Stress	50% RH / 23°C	MPa	ASTM D695-02a	58
Compressive Modulus	50% RH / 23°C	MPa	ASTM D695-02a	1,088
Compressive Yield	50% RH / 23°C	MPa	ASTM D695-02a	42
Maximum Load	50% RH / 23°C	N	ASTM D790-07	30
Flexural Stress	50% RH / 23°C	MPa	ASTM D790-07	91
Flexural Modulus	50% RH / 23°C	MPa	ASTM D790-07	2,724
Martens Hardness		N/mm ²	ISO 14577	103
Rockwell Hardness	50% RH / 23°C	M	ASTM D785	88
Pencil Hardness	7.5 N Force		ISO 15184	H
Taber Abrasion	500 g, 100 Cycles, 3.0 mm thick	%	ASTM D1044	9.66%
Steel Wool Abrasion	200 Cycles, #0000	%		2%
Izod Impact – Notched	25°C	Ft lb/inch	ASTM D256	0.2 – 0.4
Izod Impact – Unnotched	25°C	Ft lb/inch	ASTM D256	2 – 3
THERMAL Tests conducted on 3.0 mm thick sheet				
Specific Heat	25°C	J / g / °C	ASTM E1269	1.30
Thermal Expansion Coefficient		$\mu\text{m} / (\text{m } ^\circ\text{C})$	ASTM E831	100
Heat Distortion Temperature	264 psi	°C	ASTM D648	55
Continuous Service Temperature		°C		100
Softening Temperature		°C	ASTM E1545	> 200
FLAMMABILITY Tests conducted on 1.0 mm thick sheet				
UL 94 Flammability Class	50% RH / 23°C		ASTM D3801/ D635-06	HB
Flash Ignition Temperature		°C	ASTM D1929	376
Self Ignition Temperature		°C	ASTM D1929	382
ELECTRICAL Tests conducted on 1.0 mm thick sheet				
Surface Resistivity	50% RH / 23°C, 500 V	Ohms	ASTM D257-99	28×10^{15}
Volume Resistivity	50% RH / 23°C, 500 V	Ohms-cm	ASTM D257-99	15×10^{15}
Dielectric Constant			ASTM D150	
At 100 Hz				4.4
At 1 kHz				4.2
At 1 MHz				3.6
BASIC Tests conducted on 1.0 mm thick sheet				
Specific Gravity		g / cm ³		1.31
Water Absorption	7 days, 25°C	%		0.7
Oxygen Permeability	0% RH / 23°C	cm ³ / (100 in ² * day)	ASTM D3801	0.1
Water Vapor Transmission Rate	100% RH / 38°C	g / (100 in ² * day)	ASTM F1249	0.27

PRODUCT AVAILABILITY

STANDARD SHEET SIZE (Tolerances: ± 0.1 mm)	Custom Sizes up to 960 mm x 480 mm (37.8" x 18.9")																									
STANDARD THICKNESS (Tolerances: $\pm 10\%$)	<table border="1"> <thead> <tr> <th>(mm)</th> <th>(in)</th> </tr> </thead> <tbody> <tr><td>0.5</td><td>0.020</td></tr> <tr><td>0.7</td><td>0.028</td></tr> <tr><td>1.0</td><td>0.039</td></tr> <tr><td>1.5</td><td>0.059</td></tr> <tr><td>2.0</td><td>0.079</td></tr> </tbody> </table>	(mm)	(in)	0.5	0.020	0.7	0.028	1.0	0.039	1.5	0.059	2.0	0.079	<table border="1"> <thead> <tr> <th>(mm)</th> <th>(in)</th> </tr> </thead> <tbody> <tr><td>3.0</td><td>0.12</td></tr> <tr><td>4.0</td><td>0.16</td></tr> <tr><td>5.0</td><td>0.20</td></tr> <tr><td>6.0</td><td>0.24</td></tr> </tbody> </table>	(mm)	(in)	3.0	0.12	4.0	0.16	5.0	0.20	6.0	0.24		
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SURFACE FINISHES	Four Surface Finishes Available, One or Two Sides <ul style="list-style-type: none"> • Smooth / Smooth • Light Glare Reduction / 135 Gloss Units • Medium Glare Reduction / 110 Gloss Units • Heavy Glare Reduction / 85 Gloss Units 																									
STANDARD COLORS	Clear (Colorless) Neutral Gray Blue Aqua (Blue-Green) Amber Yellow		Brown Red Laser Red (650 nm) Laser Red (670 nm) Green IR Transmitting Only																							



Custom Sizes, Thickness and Colors available upon request



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