

# PSS-3000 Optical Sheet



PPG Optical Products  
Performance Sheet Solutions

# 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. PSS-3000 sheet also offers 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
<b>OPTICAL</b> 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
<b>MECHANICAL</b> 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 <sup>2</sup>	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
<b>THERMAL</b> Tests conducted on 3.0 mm thick sheet				
Specific Heat	25°C	J / g / °C	ASTM E1269	1.30
Thermal Expansion Coefficient		μm / (m °C)	ASTM E831	100
Heat Distortion Temperature	264 psi	°C	ASTM D648	55
Continuous Service Temperature		°C		100
Softening Temperature		°C	ASTM E1545	> 200
<b>FLAMMABILITY</b> 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
<b>ELECTRICAL</b> Tests conducted on 1.0 mm thick sheet				
Surface Resistivity	50% RH / 23°C, 500 V	Ohms	ASTM D257-99	28 x 10 <sup>15</sup>
Volume Resistivity	50% RH / 23°C, 500 V	Ohms-cm	ASTM D257-99	15 x 10 <sup>15</sup>
Dielectric Constant			ASTM D150	
At 100 Hz				4.4
At 1 kHz				4.2
At 1 MHz				3.6
<b>BASIC</b> Tests conducted on 1.0 mm thick sheet				
Specific Gravity		g / cm <sup>3</sup>		1.31
Water Absorption	7 days, 25°C	%		0.7
Oxygen Permeability	0% RH / 23°C	cm <sup>3</sup> / (100 in <sup>2</sup> * day)	ASTM D3801	0.1
Water Vapor Transmission Rate	100% RH / 38°C	g / (100 in <sup>2</sup> * day)	ASTM F1249	0.27

# PRODUCT AVAILABILITY

<b>STANDARD SHEET SIZE</b> (Tolerances: $\pm 0.1$ mm)	Custom Sizes up to 960 mm x 480 mm (37.8" x 18.9")															
<b>STANDARD THICKNESS</b> (Tolerances: $\pm 10\%$ )	(mm) 0.5 0.7 1.0 1.5 2.0	(in) 0.020 0.028 0.039 0.059 0.079	(mm) 3.0 4.0 5.0 6.0	(in) 0.12 0.16 0.20 0.24												
<b>SURFACE FINISHES</b>	<b>Four Surface Finishes Available, One or Two Sides</b> <ul style="list-style-type: none"> <li>• Smooth / Smooth</li> <li>• Light Glare Reduction / 135 Gloss Units</li> <li>• Medium Glare Reduction / 110 Gloss Units</li> <li>• Heavy Glare Reduction / 85 Gloss Units</li> </ul>															
<b>STANDARD COLORS</b>	<table border="0"> <tr> <td>Clear (Colorless)</td> <td>Brown</td> </tr> <tr> <td>Neutral Gray</td> <td>Red</td> </tr> <tr> <td>Blue</td> <td>Laser Red (650 nm)</td> </tr> <tr> <td>Aqua (Blue-Green)</td> <td>Laser Red (670 nm)</td> </tr> <tr> <td>Amber</td> <td>Green</td> </tr> <tr> <td>Yellow</td> <td>IR Transmitting Only</td> </tr> </table> 				Clear (Colorless)	Brown	Neutral Gray	Red	Blue	Laser Red (650 nm)	Aqua (Blue-Green)	Laser Red (670 nm)	Amber	Green	Yellow	IR Transmitting Only
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Custom Sizes, Thickness and Colors available upon request



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