

One-Inch Insulating Glass Unit Comparisons with PPG Glass*

Insulating Vision Unit Performance Comparisons				1-inch (25mm) units with 1/2-inch (13mm) airspace and two 1/4-inch (6mm) lites; interior lite clear unless otherwise noted							
Glass Type		Transmittance ²			Reflectance ²		U-Value ³ (Imperial)		Shading Coefficient ⁴	Solar Heat Gain Coefficient ⁵	Light to Solar Gain (LSG) ⁶
		Ultra-violet %	Visible %	Total Solar Energy %	Visible Light %	Total Solar Energy %	Winter Night-time	Summer Day-time			
Uncoated											
	Clear Glass	50	79	61	15	12	0.47	0.50	0.81	0.70	1.13
	STARPHIRE® Ultra-Clear Glass ¹	46	84	80	15	14	0.47	0.50	0.94	0.82	1.02
	SOLEXIA™ Tinted Glass	25	69	39	13	8	0.47	0.50	0.57	0.49	1.41
	ATLANTICA™ Tinted Glass	13	60	29	11	7	0.47	0.50	0.47	0.40	1.50
	CARIBIA® Tinted Glass	20	60	28	11	7	0.47	0.50	0.45	0.39	1.55
	AZURIA™ Tinted Glass	34	61	28	11	7	0.47	0.50	0.45	0.39	1.56
	SOLARBRONZE® Tinted Glass	21	47	39	8	7	0.47	0.50	0.59	0.51	0.93
	SOLARGRAY® Tinted Glass	20	40	33	7	7	0.47	0.50	0.53	0.45	0.88
	OPTIGRAY® 23 Tinted Glass	6	21	15	6	5	0.47	0.50	0.34	0.29	0.71
	GRAYLITE® Tinted Glass	6	12	19	5	5	0.47	0.50	0.39	0.34	0.36
Coated											
	SUNGATE® 500 Low-E Glass										
	SUNGATE 500 (2) Clear	42	74	52	17	14	0.35	0.35	0.71	0.62	1.19
	SUNGATE 500 (3) SOLEXIA	21	64	33	14	9	0.35	0.35	0.51	0.44	1.45
	SUNGATE 500 (3) ATLANTICA	11	56	25	12	7	0.35	0.35	0.41	0.35	1.59
	SUNGATE 500 (3) CARIBIA	17	56	24	12	7	0.35	0.35	0.40	0.34	1.65
	SUNGATE 500 (3) AZURIA	29	57	24	12	7	0.35	0.35	0.40	0.34	1.66
	SUNGATE 500 (3) Bronze	18	44	33	9	9	0.35	0.35	0.53	0.46	0.96
	SUNGATE 500 (3) Gray	17	37	28	8	8	0.35	0.35	0.47	0.40	0.92
	SUNGATE 500 (3) OPTIGRAY 23	6	19	13	6	6	0.35	0.35	0.28	0.24	0.80
	SUNGATE 500 (3) GRAYLITE	5	11	16	5	6	0.35	0.35	0.33	0.28	0.41
	SUNGATE® 100 Low-E Glass										
	SUNGATE 100 (2) Clear	35	73	44	12	20	0.31	0.30	0.59	0.52	1.40
	SUNGATE 100 (3) SOLEXIA	18	63	30	10	10	0.31	0.30	0.48	0.41	1.54
	SUNGATE 100 (3) ATLANTICA	10	55	23	9	7	0.31	0.30	0.39	0.33	1.67
	SUNGATE 100 (3) CARIBIA	14	56	23	9	7	0.31	0.30	0.38	0.33	1.68
	SUNGATE 100 (3) AZURIA	24	56	23	9	7	0.31	0.30	0.38	0.33	1.70
	SUNGATE 100 (3) Bronze	15	44	28	7	12	0.31	0.30	0.46	0.40	1.09
	SUNGATE 100 (3) Gray	14	36	24	7	10	0.31	0.30	0.41	0.35	1.04
	SUNGATE 100 (3) OPTIGRAY 23	5	19	11	5	6	0.31	0.30	0.25	0.21	0.90
	SUNGATE 100 (3) GRAYLITE	4	11	12	5	8	0.31	0.30	0.27	0.23	0.49
	SOLARBAN® 60 Solar Control Low-E Glass										
	SOLARBAN 60 (2) STARPHIRE ¹	19	74	38	11	43	0.29	0.27	0.46	0.40	1.86
	SOLARBAN 60 (2) Clear	19	70	33	11	29	0.29	0.27	0.44	0.38	1.85
	SOLARBAN 60 (3) SOLEXIA	10	61	25	11	11	0.29	0.27	0.42	0.36	1.70
	SOLARBAN 60 (3) ATLANTICA	5	53	20	9	7	0.29	0.27	0.35	0.30	1.78
	SOLARBAN 60 (3) CARIBIA	8	54	20	9	7	0.29	0.27	0.35	0.31	1.74
	SOLARBAN 60 (3) AZURIA	13	54	21	9	7	0.29	0.27	0.36	0.31	1.75
	SOLARBAN 60 (3) Bronze	8	42	20	7	17	0.29	0.27	0.36	0.31	1.36
	SOLARBAN 60 (3) Gray	8	35	17	7	13	0.29	0.27	0.32	0.28	1.26
	SOLARBAN 60 (3) OPTIGRAY 23	3	18	9	5	6	0.29	0.27	0.21	0.18	1.02
	SOLARBAN 60 (3) GRAYLITE	2	11	7	5	10	0.29	0.27	0.20	0.17	0.64
	SOLARBAN® 80 Solar Control Low-E Glass										
	SOLARBAN 80 (2) Clear	13	47	20	33	38	0.29	0.27	0.28	0.24	1.98
	SOLARBAN® with z50 Solar Control Low-E Glass										
	SOLARBAN z50 (2) Clear	14	51	26	8	23	0.29	0.27	0.36	0.31	1.64
	SOLARBAN z50 (3) AZURIA	10	39	16	8	7	0.29	0.27	0.35	0.30	1.31
	SOLARBAN z50 (3) ATLANTICA	4	39	15	8	7	0.29	0.27	0.34	0.30	1.28
	SOLARBAN z50 (3) CARIBIA	6	39	15	8	7	0.29	0.27	0.34	0.30	1.29
	SOLARBAN z50 (3) SOLEXIA	8	44	19	10	11	0.29	0.27	0.41	0.35	1.26
	SOLARBAN z50 (3) Gray	6	25	14	6	13	0.29	0.27	0.32	0.28	0.91
	SOLARBAN® 70XL Solar Control Low-E Glass ^{1†}										
	SOLARBAN 70XL (2) STARPHIRE ^{1†}	5	64	25	12	53	0.28	0.26	0.32	0.27	2.37
	SOLARBAN 70XL (3) SOLEXIA	3	56	20	11	13	0.28	0.26	0.37	0.32	1.75
	SOLARBAN 70XL (3) ATLANTICA	2	49	17	10	8	0.29	0.26	0.32	0.28	1.74
	SOLARBAN 70XL (3) CARIBIA	2	49	17	9	8	0.29	0.26	0.32	0.28	1.75
	SOLARBAN 70XL (3) AZURIA	4	49	17	9	8	0.29	0.26	0.33	0.29	1.70
	SOLARBAN 70XL (3) Bronze	2	38	15	8	20	0.29	0.26	0.30	0.26	1.48
	SOLARBAN 70XL (3) Gray	2	32	13	7	15	0.29	0.26	0.27	0.24	1.34
	SOLARBAN 70XL (3) OPTIGRAY 23	1	17	7	5	7	0.29	0.26	0.19	0.16	1.04
	SOLARBAN 70XL (3) GRAYLITE	1	10	5	5	11	0.29	0.26	0.16	0.14	0.71

*Data based on using **Starphire** glass for both the interior and exterior lites.

†† **Solarban 70XL** requires the coating on **Starphire** glass, interior lite is clear.

One-Inch Glass Unit Comparisons*

Insulating Vision Unit Performance Comparisons											1-inch (25mm) units with 1/2-inch (13mm) airspace and two 1/4-inch (6mm) lites; interior lite clear unless otherwise noted										
Glass Type		Transmittance ²			Reflectance ²		U-Value ³ (Imperial)		Shading Coefficient ⁴	Solar Heat Gain Coefficient ⁵	Light to Solar Gain (LSG) ⁶										
		Ultra-violet %	Visible %	Total Solar Energy %	Visible Light %	Total Solar Energy %	Winter Night-time	Summer Day-time													
Coated																					
VISTACOOl™ Subtly Reflective, Color-Enriched Glass with SOLARBAN z50 Solar Control Low-E (3)																					
VISTACOOl (2) AZURIA		9	30	12	20	11	0.29	0.27	0.29	0.25	1.20										
VISTACOOl (2) CARIBIA		5	30	12	19	11	0.29	0.27	0.29	0.25	1.20										
VISTACOOl (2) SOLARGRAY		5	20	11	11	15	0.29	0.27	0.27	0.24	0.82										
VISTACOOl™ Subtly Reflective Glass																					
VISTACOOl (2) AZURIA		29	47	22	21	11	0.47	0.50	0.39	0.34	1.39										
VISTACOOl (2) CARIBIA		16	47	22	21	10	0.47	0.50	0.39	0.34	1.38										
VISTACOOl (2) SOLARGRAY		17	31	28	12	9	0.47	0.50	0.47	0.40	0.77										
SOLARCOOl® Glass																					
SOLARCOOl (2) SOLEXIA		7	27	19	24	12	0.48	0.50	0.36	0.31	0.87										
SOLARCOOl (2) CARIBIA		6	24	12	20	9	0.48	0.50	0.30	0.25	0.94										
SOLARCOOl (2) AZURIA		10	24	12	20	10	0.48	0.50	0.29	0.25	0.95										
SOLARCOOl (2) Bronze		6	19	21	14	12	0.48	0.50	0.40	0.34	0.55										
SOLARCOOl (2) Gray		6	16	18	11	10	0.48	0.50	0.36	0.31	0.50										
SOLARCOOl (2) GRAYLITE		2	5	12	5	6	0.48	0.50	0.31	0.26	0.18										
VISTACOOl™ and SOLARCOOl® with SUNGATE® 500 Low-E (3)																					
VISTACOOl (2) AZURIA + Low-E		24	44	19	22	11	0.35	0.35	0.34	0.29	1.53										
VISTACOOl (2) CARIBIA + Low-E		14	44	19	22	11	0.35	0.35	0.34	0.29	1.51										
VISTACOOl (2) SOLARGRAY + Low-E		14	29	23	12	10	0.35	0.35	0.41	0.35	0.83										
SOLARCOOl (2) SOLEXIA + Low-E		6	25	15	24	13	0.35	0.35	0.31	0.26	0.98										
SOLARCOOl (2) CARIBIA + Low-E		5	22	10	19	10	0.35	0.35	0.24	0.20	1.11										
SOLARCOOl (2) AZURIA + Low-E		8	22	10	20	10	0.35	0.35	0.23	0.20	1.11										
SOLARCOOl (2) Bronze + Low-E		5	18	17	14	13	0.35	0.35	0.34	0.29	0.61										
SOLARCOOl (2) Gray + Low-E		5	15	14	11	10	0.35	0.35	0.30	0.26	0.56										
SOLARCOOl (2) GRAYLITE + Low-E		1	5	9	5	7	0.35	0.35	0.25	0.21	0.21										
VISTACOOl™ and SOLARCOOl® with SOLARBAN® 60 Solar Control Low-E (3)																					
VISTACOOl (2) AZURIA + Low-E		11	42	16	20	11	0.29	0.27	0.30	0.26	1.61										
VISTACOOl (2) CARIBIA + Low-E		7	42	16	20	11	0.29	0.27	0.29	0.25	1.66										
VISTACOOl (2) SOLARGRAY + Low-E		7	27	14	11	15	0.29	0.27	0.28	0.24	1.13										
SOLARCOOl (2) SOLEXIA + Low-E		3	24	10	24	15	0.29	0.27	0.22	0.19	1.26										
SOLARCOOl (2) CARIBIA + Low-E		2	21	8	19	10	0.29	0.27	0.19	0.16	1.30										
SOLARCOOl (2) AZURIA + Low-E		4	21	8	19	10	0.29	0.27	0.19	0.16	1.31										
SOLARCOOl (2) Bronze + Low-E		3	17	9	14	18	0.29	0.27	0.21	0.18	0.92										
SOLARCOOl (2) Gray + Low-E		2	14	7	11	14	0.29	0.27	0.19	0.16	0.86										
SOLARCOOl (2) GRAYLITE + Low-E		1	4	3	5	10	0.29	0.27	0.14	0.12	0.36										
VISTACOOl™ and SOLARCOOl® with SOLARBAN® 70XL Solar Control Low-E (3)																					
VISTACOOl (2) AZURIA + Low-E		3	38	14	21	12	0.29	0.26	0.27	0.24	1.59										
VISTACOOl (2) CARIBIA + Low-E		2	38	13	20	11	0.28	0.26	0.27	0.23	1.65										
VISTACOOl (2) SOLARGRAY + Low-E		2	25	10	11	17	0.29	0.26	0.23	0.20	1.25										
SOLARCOOl (2) SOLEXIA + Low-E		1	22	8	24	16	0.28	0.26	0.20	0.17	1.28										
SOLARCOOl (2) CARIBIA + Low-E		1	19	6	19	10	0.29	0.26	0.18	0.15	1.27										
SOLARCOOl (2) AZURIA + Low-E		1	19	7	19	10	0.29	0.26	0.18	0.15	1.27										
SOLARCOOl (2) Bronze + Low-E		1	15	6	14	19	0.29	0.26	0.17	0.15	1.01										
SOLARCOOl (2) Gray + Low-E		1	13	5	11	15	0.29	0.26	0.16	0.14	0.90										
SOLARCOOl (2) GRAYLITE + Low-E		< 1	4	2	5	10	0.29	0.26	0.12	0.10	0.39										

* Performance data is based on representative samples of factory production. Actual values may vary slightly due to variations in the production process.

- Figures may vary due to manufacturing tolerances. All tabulated data is based on NFRC methodology using the LBL Window 5.2 software. Variations from previously published data are due to minor changes in the LBL Window 5.2 software versus Version 4.1.
- Transmittance and reflectance values based on spectrophotometric measurements and energy distribution of solar radiation.
- U-value (K-value) is the overall coefficient of heat transmittance or heat flow measured in BTU/hr. • ft² • °F (watts/m² • °C). Lower U-values indicate better insulating performance.
- Shading coefficient is the ratio of the total amount of solar energy that passes through a glass relative to 1/8-in. (3.0mm) thick clear glass under the same design conditions. It includes both solar energy transmitted directly plus any absorbed solar energy re-radiated and

convected. Lower shading coefficient values indicate better performance in reducing solar heat gain. Note: Performance values were calculated using the LBL Window 5.2 program using NFRC 100-2001 standard winter and summer design condition.

- Solar heat gain coefficient (SHGC) represents the solar heat gain through the glass relative to the incident solar radiation. It is equal to 86% of the shading coefficient.
- Light to Solar Gain ratio (LSG) is the ratio of visible light transmittance to solar heat gain coefficient.

Important glass design considerations and comprehensive technical information, including performance, thermal stress and wind load data, for all PPG glasses are available at www.ppgideascape.com. Monolithic Glass Data can also be found at www.ppgideascape.com or by calling 1-888-PPG-IDEA (1-888-774-4332).

