

One Inch Insulating Glass Unit Comparisons with PPG Architectural Glass

Glass Type	Transmittance			Reflectance		U-Value		Shading Coefficient	Solar Heat Gain Coefficient	Light to Solar Gain (LSG)
	Ultra Violet %	Visible %	Total Solar Energy %	Visible Light %	Total Solar Energy %	Winter Night time	Summer Day-Time			
Sungate® 500 Low-E Glass										
Sungate 500 (2) + Clear	42	74	52	17	14	0.35	0.35	0.71	0.62	1.19
Solexia + Sungate 500 (3) Clear	21	64	33	14	9	0.35	0.35	0.51	0.44	1.45
Atlantica + Sungate 500 (3) Clear	11	56	25	12	7	0.35	0.35	0.41	0.35	1.60
Caribia + Sungate 500 (3) Clear	17	56	24	12	7	0.35	0.35	0.40	0.34	1.65
Azuria + Sungate 500 (3) Clear	29	57	24	12	7	0.35	0.35	0.40	0.34	1.66
Pacifica + Sungate 500 (3) Clear	10	35	19	7	6	0.35	0.35	0.35	0.30	1.16
Solarblue + Sungate 500 (3) Clear	21	46	32	10	9	0.35	0.35	0.51	0.44	1.06
Solarbronze + Sungate 500 (3) Clear	18	44	33	9	9	0.35	0.35	0.53	0.46	0.96
Solargray + Sungate 500 (3) Clear	17	37	28	8	8	0.35	0.35	0.47	0.40	0.92
Optigray23 + Sungate 500 (3) Clear	6	19	13	6	6	0.35	0.35	0.28	0.24	0.80
Graylite + Sungate 500 (3) Clear	5	11	16	5	6	0.35	0.35	0.33	0.28	0.41
Solarban® 60 Solar Control Low-E Glass										
Solarban 60 (2) Starfire + Starfire	25	74	38	11	43	0.29	0.27	0.46	0.40	1.85
Solarban 60 (2) Clear + Clear	19	70	33	11	29	0.29	0.27	0.44	0.38	1.85
Solarban 60 (2) Atlantica + Clear	5	54	20	8	7	0.29	0.27	0.31	0.27	1.98
Solarban 60 (2) Azuria + Clear	13	54	21	8	7	0.29	0.27	0.32	0.28	1.93
Solarban 60 (2) Caribia + Clear	8	54	20	8	4	0.29	0.27	0.31	0.27	1.99
Solarban 60 (2) Solexia + Clear	10	61	25	10	11	0.29	0.27	0.36	0.32	1.92
Solarban 60 (2) Pacifica + Clear	5	34	15	6	7	0.29	0.27	0.26	0.22	1.52
Solarban 60 (2) Solarblue + Clear	10	45	21	7	13	0.29	0.27	0.32	0.28	1.60
Solarban 60 (2) Solarbronze + Clear	8	42	20	7	16	0.29	0.27	0.31	0.27	1.56
Solarban 60 (2) Solargrey + Clear	8	35	17	6	12	0.29	0.27	0.28	0.24	1.47
Solexia + Solarban 60 (3) Clear	10	61	25	11	11	0.29	0.27	0.42	0.36	1.70
Caribia + Solarban 60 (3) Clear	8	54	20	9	7	0.29	0.27	0.35	0.31	1.74
Azuria + Solarban 60 (3) Clear	13	54	21	9	7	0.29	0.27	0.36	0.31	1.75
Pacifica + Solarban 60 (3) Clear	5	34	15	6	7	0.29	0.27	0.29	0.25	1.36
Solarblue + Solarban 60 (3) Clear	10	45	21	8	13	0.29	0.27	0.37	0.32	1.39
Solarban® 70XL Solar Control Low-E Glass										
Solarban 70XL (2) + Clear	6	64	25	12	52	0.28	0.26	0.32	0.27	2.37
Solarban 70XL (2) Solexia + Clear	3	54	19	10	12	0.28	0.26	0.29	0.25	2.18
Solarban 70XL (2) Atlantica + Clear	2	48	16	9	8	0.28	0.26	0.26	0.23	2.07
Solarban 70XL (2) Caribia + Clear	2	48	16	9	7	0.28	0.26	0.27	0.23	2.07
Solarban 70XL (2) Azuria + Clear	4	48	17	9	7	0.28	0.26	0.27	0.23	2.09
Solarban 70XL (2) Solarblue + Clear	3	40	15	7	15	0.28	0.26	0.25	0.21	1.84
Solarban 70XL (2) Solarbronze + Clear	2	37	14	7	19	0.28	0.26	0.23	0.20	1.87
Solarban 70XL (2) Solargray + Clear	2	31	12	7	15	0.28	0.26	0.22	0.19	1.65
Solexia + Solarban 70XL (3)	3	56	20	11	13	0.28	0.26	0.37	0.32	1.74
Caribia + Solarban 70XL (3)	2	49	17	9	8	0.28	0.26	0.32	0.28	1.75
Azuria + Solarban 70XL (3)	4	49	17	10	8	0.28	0.26	0.33	0.29	1.70
Pacifica + Solarban 70XL (3)	2	31	12	6	7	0.28	0.26	0.26	0.22	1.30
Solarblue + Solarban 70XL (3)	3	41	16	8	16	0.28	0.26	0.32	0.27	1.48
Solarban® 80 Solar Control Low-e Glass										
Solarban 80 (2) Clear + Clear	13	48	20	33	38	0.29	0.27	0.28	0.24	1.98
Solarban 80 (2) Optiblue + Clear	9	34	15	19	28	0.29	0.27	0.23	0.20	1.70
Solarban® z50 Solar Control Low-E Glass										
Solarban z50 (2) Optiblue + Clear	14	51	26	8	23	0.29	0.27	0.36	0.31	1.64
Azuria + Solarban z50 (3) Optiblue	10	39	16	8	7	0.29	0.27	0.35	0.30	1.31
Atlantica + Solarban z50 (3) Optiblue	4	39	15	8	7	0.29	0.27	0.34	0.30	1.28
Caribia + Solarban z50 (3) Optiblue	6	39	15	8	7	0.29	0.27	0.34	0.30	1.29
Solexia + Solarban z50 (3) Optiblue	8	44	19	10	11	0.29	0.27	0.41	0.35	1.26
Pacifica + Solarban z50 (3) Optiblue	4	25	12	6	7	0.29	0.27	0.28	0.24	1.01
Solarblue + Solarban z50 (3) Optiblue	8	32	17	7	13	0.29	0.27	0.36	0.31	1.03

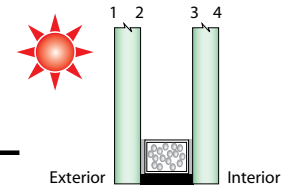
One Inch Insulating Glass Unit Comparisons with PPG Architectural Glass

Glass Type	Transmittance			Reflectance		U-Value		Shading Coefficient	Solar Heat Gain Coefficient	Light to Solar Gain (LSG)
	Ultra Violet %	Visible %	Total Solar Energy %	Visible Light %	Total Solar Energy %	Winter Night time	Summer Day-Time			
Solarban® R100 Solar Control Low-E Glass										
Solarban R100 (2) + Clear	12	42	19	32	41	0.29	0.27	0.27	0.23	1.79
Solarban R100 (2) Starphire + Starphire	16	44	21	33	57	0.29	0.27	0.27	0.23	1.87
Solarban R100 (2) Azuria + Clear	8	32	12	21	11	0.29	0.27	0.22	0.19	1.66
Solarban R100 (2) Atlantica + Clear	3	31	12	20	11	0.29	0.27	0.22	0.19	1.67
Solarban R100 (2) Caribia + Clear	5	32	12	20	11	0.29	0.27	0.22	0.19	1.67
Solarban R100 (2) Solexia + Clear	6	36	15	25	17	0.29	0.27	0.24	0.21	1.72
Solarban R100 (2) Optiblue + Clear	8	30	14	19	31	0.29	0.27	0.23	0.20	1.50
Solarban R100 (2) Pacifica + Clear	3	20	9	11	9	0.29	0.27	0.19	0.16	1.24
Solarban R100 (2) Solarblue + Clear	6	26	12	15	17	0.29	0.27	0.22	0.19	1.40
Vistacool™ and Solarcool® with Solarban® 60 Solar Control Low-E Glass (3)										
Vistacool (2) Azuria + Solarban 60 (3) Clear	11	42	16	20	11	0.29	0.27	0.30	0.26	1.61
Vistacool (2) Caribia + Solarban 60 (3) Clear	7	42	16	20	11	0.29	0.27	0.29	0.25	1.66
Vistacool (2) Pacifica + Solarban 60 (3) Clear	4	26	12	11	9	0.29	0.27	0.24	0.21	1.23
Vistacool (2) Solargray + Solarban 60 (3) Clear	7	27	14	11	15	0.29	0.27	0.28	0.24	1.13
Solarcool (2) Pacifica + Solarban 60 (3) Clear	2	13	6	10	8	0.29	0.27	0.17	0.15	0.89
Solarcool (2) Solexia + Solarban 60 (3) Clear	3	24	10	24	15	0.29	0.27	0.22	0.19	1.26
Solarcool (2) Caribia + Solarban 60 (3) Clear	2	21	8	19	10	0.29	0.27	0.19	0.16	1.30
Solarcool (2) Azuria + Solarban 60 (3) Clear	4	21	8	19	10	0.29	0.27	0.19	0.16	1.31
Solarcool (2) Solarblue + Solarban 60 (3) Clear	3	17	9	14	15	0.29	0.27	0.21	0.18	0.97
Solarcool (2) Solarbronze + Solarban 60 (3) Clear	3	17	9	14	18	0.29	0.27	0.21	0.18	0.92
Solarcool (2) Solargray + Solarban 60 (3) Clear	2	14	7	11	14	0.29	0.27	0.19	0.16	0.86
Solarcool (2) Graylite + Solarban 60 (3) Clear	<1	3	2	5	5	0.29	0.27	0.12	0.10	0.28
Vistacool™ and Solarcool® with Solarban z50 Solar Control Low-E Glass										
Vistacool (2) Azuria + Solarban z50 (3) Optiblue	9	30	12	20	11	0.29	0.27	0.29	0.25	1.20
Vistacool (2) Caribia + Solarban z50 (3) Optiblue	5	30	12	20	11	0.29	0.27	0.29	0.25	1.20
Vistacool (2) Pacifica + Solarban z50 (3) Optiblue	4	19	9	11	9	0.29	0.27	0.24	0.21	0.91
Vistacool (2) Solargray + Solarban z50 (3) Optiblue	5	20	11	11	15	0.29	0.27	0.27	0.24	0.82
Solarcool (2) Pacifica + Solarban z50 (3) Optiblue	1	9	4	10	8	0.29	0.27	0.17	0.14	0.65
Solarcool (2) Solarblue + Solarban z50 (3) Optiblue	2	12	7	14	15	0.29	0.27	0.20	0.17	0.71
Solarcool (2) Graylite + Solarban z50 (3) Optiblue	<1	2	1	5	5	0.29	0.27	0.12	0.10	0.20
Vistacool™ and Solarcool® with Solarban® 70XL Solar Control Low-E Glass (3)										
Vistacool (2) Azuria + Solarban 70XL (3)	4	38	14	21	12	0.28	0.26	0.27	0.24	1.59
Vistacool (2) Caribia + Solarban 70XL (3)	2	38	13	20	11	0.28	0.26	0.27	0.23	1.65
Vistacool (2) Pacifica + Solarban 70XL (3)	1	24	9	11	9	0.28	0.26	0.22	0.19	1.24
Vistacool (2) Solargray + Solarban 70XL (3)	2	25	10	11	17	0.28	0.26	0.23	0.20	1.24
Solarcool (2) Solexia + Solarban 70XL (3)	1	22	8	24	16	0.28	0.26	0.20	0.17	1.28
Solarcool (2) Caribia + Solarban 70XL (3)	1	19	6	19	10	0.28	0.26	0.18	0.15	1.27
Solarcool (2) Azuria + Solarban 70XL (3)	1	19	7	19	10	0.28	0.26	0.18	0.15	1.27
Solarcool (2) Pacifica + Solarban 70XL (3)	1	12	4	10	8	0.28	0.26	0.15	0.13	0.89
Solarcool (2) Solarblue + Solarban 70XL (3)	1	16	6	14	16	0.28	0.26	0.18	0.15	1.03
Solarcool (2) Solarbronze + Solarban 70XL (3)	1	15	6	14	19	0.28	0.26	0.17	0.15	1.01
Solarcool (2) Solargray + Solarban 70XL (3)	1	13	5	11	15	0.28	0.26	0.16	0.14	0.89
Solarcool (2) Graylite + Solarban 70XL (3)	<1	3	1	5	5	0.28	0.26	0.11	0.09	0.27

Solarban 70XL for annealed applications is applied to Starphire Glass; heat treated applications will require either clear or Starphire glass depending on the manufacturing process.

Performance data is based on representative samples of factory production. Actual values may vary due to the production process and manufacturing tolerances. All tabulated data is based on NFRC methodology using the LBNL Window 5.2 software. Variations from previously published data are due to minor changes in the LBNL Windows 5.2 software versus Version 4.1.

Insulating Glass Data with Guardian SunGuard® Advanced Architectural Glass



Appearance	Product	Outboard Substrate	Inboard Substrate	Transmission			Reflectance			U-Value		Relative Heat Gain	Shading Coefficient	Solar Heat Gain Coefficient	Light to Solar Gain (LSG)
				Visible Light %	Ultra-violet %	Total Solar Energy %	Visible Light Out %	Visible Light In %	Total Solar Energy %	Winter Nighttime	Summer Daytime				
SunGuard SuperNeutral				Coating #2 Surface								6 mm / 12 mm a.s. / 6 mm			
Ultra Clear	SN 68	UltraWhite	UltraWhite	69	32	36	11	12	39	0.29	0.28	93	0.44	0.39	1.79
Ultra Clear	SN 54	UltraWhite	UltraWhite	55	17	25	13	18	41	0.29	0.27	69	0.33	0.28	1.93
Clear	SN 68	Clear	Clear	68	29	33	11	12	32	0.29	0.28	90	0.43	0.38	1.80
Clear	SN 54	Clear	Clear	54	15	23	13	18	33	0.29	0.27	68	0.32	0.28	1.91
Green	SN 68	Green	Clear	58	14	24	9	11	9	0.29	0.28	73	0.34	0.30	1.90
Green	SN 54	Green	Clear	46	7	17	10	18	10	0.29	0.27	59	0.27	0.24	1.88
Light Gray	SN 68	CrystalGray	Clear	49	18	24	8	11	16	0.29	0.28	72	0.34	0.30	1.65
Light Gray	SN 54	CrystalGray	Clear	39	9	17	9	17	17	0.29	0.27	57	0.26	0.23	1.68
				Coating #3 Surface											
Green	SN 68 (#3)	Green	Clear	58	14	24	10	10	10	0.29	0.28	84	0.40	0.35	1.64
Gray	SN 68 (#3)	Gray	Clear	35	13	18	6	9	15	0.29	0.28	71	0.34	0.30	1.20
Bronze	SN 68 (#3)	Bronze	Clear	41	12	20	7	9	16	0.29	0.28	75	0.36	0.31	1.30
Blue	SN 68 (#3)	Blue	Clear	44	17	21	8	9	13	0.29	0.28	78	0.37	0.33	1.33
Dark Green	SN 68 (#3)	SMG III	Clear	51	8	19	9	10	8	0.29	0.28	73	0.35	0.30	1.67
Light Gray	SN 68 (#3)	CrystalGray	Clear	49	17	24	9	10	17	0.29	0.28	85	0.41	0.35	1.39
SunGuard High Performance				Coating #2 Surface								6 mm / 12 mm a.s. / 6 mm			
Light Blue	Light Blue 63	Clear	Clear	62	39	43	15	12	15	0.34	0.35	122	0.59	0.51	1.20
Neutral Pewter	Neutral 61	Clear	Clear	61	27	34	20	15	31	0.30	0.29	95	0.45	0.40	1.53
Neutral Blue	Neutral 50	Clear	Clear	50	30	31	16	11	19	0.33	0.32	94	0.45	0.39	1.28
Neutral Gray	Neutral 40	Clear	Clear	40	26	25	20	12	22	0.33	0.33	78	0.37	0.32	1.25
Light Silver	AG 50	Clear	Clear	50	26	28	28	18	36	0.30	0.28	80	0.38	0.33	1.51
Light Silver	AG 43	Clear	Clear	41	23	24	30	15	33	0.31	0.30	71	0.33	0.29	1.39
Royal Blue	Royal Blue 40	Clear	Clear	38	21	24	24	18	24	0.31	0.31	76	0.36	0.31	1.21
Blue-Green	Light Blue 63	Green	Clear	52	18	26	12	12	8	0.34	0.35	84	0.39	0.35	1.51
Green	Neutral 61	Green	Clear	51	13	23	15	14	11	0.30	0.29	71	0.34	0.30	1.74
Green	Neutral 50	Green	Clear	42	14	20	13	10	9	0.33	0.32	69	0.32	0.28	1.49
Green	Neutral 40	Green	Clear	34	12	16	16	12	10	0.33	0.33	59	0.27	0.24	1.39
Green	AG 50	Green	Clear	43	12	19	21	18	14	0.30	0.28	62	0.29	0.25	1.67
Green	AG 43	Green	Clear	35	11	15	23	14	14	0.31	0.30	55	0.26	0.23	1.52
Aquamarine	Royal Blue 40	Green	Clear	32	9	15	19	17	12	0.31	0.31	56	0.26	0.23	1.40
Silver Gray	AG 50	CrystalGray	Clear	36	15	20	17	18	19	0.30	0.28	64	0.30	0.26	1.38
Silver Gray	AG 43	CrystalGray	Clear	30	13	16	18	14	18	0.31	0.30	58	0.27	0.24	1.25
Blue Gray	Royal Blue 40	CrystalGray	Clear	27	12	17	15	17	14	0.31	0.31	60	0.28	0.25	1.11
SunGuard Solar				Coating #2 Surface								6 mm / 12 mm a.s. / 6 mm			
Silver Blue-Gray	Silver 32	Clear	Clear	29	23	20	22	21	18	0.42	0.44	76	0.35	0.31	0.94
Silver	Silver 20	Clear	Clear	18	15	12	31	27	27	0.39	0.41	54	0.24	0.21	0.84
Blue-Green	Silver 32	Green	Clear	24	11	12	17	21	10	0.42	0.44	61	0.27	0.24	1.00
Green	Silver 20	Green	Clear	15	7	8	24	27	13	0.39	0.41	48	0.21	0.19	0.82
				Solar Coating #2 Surface / SuperNeutral Coating #3 Surface											
Silver Blue-Gray	Silver 32/SN 68	Clear	Clear	24	14	12	21	15	20	0.29	0.28	52	0.24	0.21	1.13
Silver	Silver 20/SN 68	Clear	Clear	15	9	7	31	19	28	0.29	0.27	39	0.17	0.15	0.99
Blue-Green	Silver 32/SN 68	Green	Clear	21	7	9	17	15	10	0.29	0.28	44	0.20	0.18	1.15
Green	Silver 20/SN 68	Green	Clear	13	4	5	24	19	13	0.29	0.27	35	0.16	0.14	0.93

NOTES:

- The performance values shown are nominal and subject to variations due to manufacturing tolerances.
- Guardian performance data are calculated in accordance with the LBNL Window 5.2 computer analysis using an air mass of 1.5.
- Outboard lite may require heat strengthening or tempering to resist potential thermal stresses. Please contact Guardian for assistance.
- A slight shift in visible light reflectance or transmission may be noticed after heat-treatment.
- Guardian recommends edge deletion for all commercial low-E coatings.
- Guardian reserves the right to change product performance characteristics without notice or obligation.
- Some product names have changed: Light Blue 63 (formerly LE-63), Neutral 61 (formerly NP-61), Neutral 50 (formerly LE-50) and Neutral 40 (formerly LE-40).



TO REQUEST SAMPLES
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