

# VITRO ARCHITECTURAL GLASS

Comparisons for One-Inch Insulating Glass Units



1-Inch Insulating Glass Unit (IGU) Comparisons with Vitro Glass

Insulating Glass Unit Performance Comparisons 1-inch (25mm) units with 1/2-inch (13mm) airspace and two 1/4-inch (6mm) lites								
Glass Type Outdoor Lite: Coating if Any (Surface) Glass + Indoor Lite: Coating if Any (Surface) Glass	Visible Light Transmittance (VLT) <sup>2</sup>	Visible Light Reflectance <sup>2</sup>		(BTU/hr <sup>2</sup> ft <sup>2</sup> °F) NFRC U-Value <sup>3</sup>		Solar Heat Gain Coefficient (SHGC) <sup>4</sup>	Light to Solar Gain (LSG) <sup>5</sup>	
		Exterior %	Interior %	Winter Nighttime	Winter Argon			
<b>Uncoated</b>								
Clear Glass + Clear	79	15	15	0.47	0.45	0.70	1.13	
<b>Starphire</b> <sup>®</sup> + <b>Starphire</b> <sup>®</sup>	84	15	15	0.47	0.45	0.82	1.02	
<b>Acuity</b> <sup>™</sup> + <b>Acuity</b> <sup>™</sup>	63	15	15	0.47	0.45	0.78	1.05	
<b>Solexia</b> <sup>®</sup> + Clear	69	13	15	0.47	0.45	0.50	1.38	
<b>Atlantica</b> <sup>®</sup> + Clear	60	11	14	0.47	0.45	0.41	1.46	
<b>Azuria</b> <sup>®</sup> + Clear	61	11	14	0.47	0.45	0.39	1.56	
<b>Solarblue</b> <sup>®</sup> + Clear	50	9	13	0.47	0.45	0.49	1.02	
<b>Pacifica</b> <sup>®</sup> + Clear	38	7	13	0.47	0.45	0.36	1.06	
<b>Solarbronze</b> <sup>®</sup> + Clear	47	8	13	0.47	0.45	0.51	0.92	
<b>Optigray</b> <sup>®</sup> + Clear	56	10	13	0.47	0.45	0.52	1.08	
<b>Solargray</b> <sup>®</sup> + Clear	40	7	13	0.47	0.45	0.46	0.87	
<b>Graylite</b> <sup>®</sup> II + Clear	8	4	12	0.47	0.45	0.22	0.36	
<b>Coated</b>								
<b>Sungate<sup>®</sup> 400 Low-E Glass</b>								
<b>Sungate</b> <sup>®</sup> 400 (2) Clear + Clear	76	14	14	0.32	0.28	0.60	1.27	
<b>Sungate</b> <sup>®</sup> 400 (2) <b>Starphire</b> <sup>®</sup> + <b>Starphire</b> <sup>®</sup>	80	14	14	0.32	0.28	0.68	1.18	
Clear + <b>Sungate</b> <sup>®</sup> 400 (3) Clear	76	14	14	0.32	0.28	0.63	1.21	
<b>Solexia</b> <sup>®</sup> + <b>Sungate</b> <sup>®</sup> 400 (3) Clear	66	11	13	0.32	0.28	0.44	1.50	
<b>Atlantica</b> <sup>®</sup> + <b>Sungate</b> <sup>®</sup> 400 (3) Clear	58	10	12	0.32	0.28	0.35	1.66	
<b>Azuria</b> <sup>®</sup> + <b>Sungate</b> <sup>®</sup> 400 (3) Clear	59	10	12	0.32	0.28	0.34	1.74	
<b>Solarblue</b> <sup>®</sup> + <b>Sungate</b> <sup>®</sup> 400 (3) Clear	48	8	12	0.32	0.28	0.42	1.14	
<b>Pacifica</b> <sup>®</sup> + <b>Sungate</b> <sup>®</sup> 400 (3) Clear	37	7	11	0.32	0.28	0.30	1.23	
<b>Solarbronze</b> <sup>®</sup> + <b>Sungate</b> <sup>®</sup> 400 (3) Clear	46	8	12	0.32	0.28	0.44	1.05	
<b>Optigray</b> <sup>®</sup> + <b>Sungate</b> <sup>®</sup> 400 (3) Clear	54	9	12	0.32	0.28	0.46	1.17	
<b>Solargray</b> <sup>®</sup> + <b>Sungate</b> <sup>®</sup> 400 (3) Clear	38	7	12	0.32	0.28	0.39	0.97	
<b>Graylite</b> <sup>®</sup> II + <b>Sungate</b> <sup>®</sup> 400 (3) Clear	8	4	11	0.32	0.28	0.15	0.53	
<b>Solarban<sup>®</sup> 60 Solar Control Low-E Glass</b>								
<b>Solarban</b> <sup>®</sup> 60 (2) Clear + Clear	70	11	12	0.29	0.24	0.39	1.79	
<b>Solarban</b> <sup>®</sup> 60 (2) <b>Starphire</b> <sup>®</sup> + <b>Starphire</b> <sup>®</sup>	74	11	12	0.29	0.24	0.41	1.80	
<b>Solarban</b> <sup>®</sup> 60 (2) <b>Acuity</b> <sup>™</sup> + <b>Acuity</b> <sup>™</sup>	73	11	12	0.29	0.24	0.41	1.78	
<b>Solarban</b> <sup>®</sup> 60 (2) <b>Solexia</b> <sup>®</sup> + Clear	61	9	12	0.29	0.24	0.32	1.91	
<b>Solarban</b> <sup>®</sup> 60 (2) <b>Atlantica</b> <sup>®</sup> + Clear	53	8	11	0.29	0.24	0.27	1.96	
<b>Solarban</b> <sup>®</sup> 60 (2) <b>Azuria</b> <sup>®</sup> + Clear	54	8	11	0.29	0.24	0.28	1.93	
<b>Solarban</b> <sup>®</sup> 60 (2) <b>Solarblue</b> <sup>®</sup> + Clear	45	7	11	0.29	0.24	0.28	1.61	
<b>Solarban</b> <sup>®</sup> 60 (2) <b>Pacifica</b> <sup>®</sup> + Clear	34	6	10	0.29	0.24	0.22	1.55	
<b>Solarban</b> <sup>®</sup> 60 (2) <b>Solarbronze</b> <sup>®</sup> + Clear	42	7	11	0.29	0.24	0.28	1.50	
<b>Solarban</b> <sup>®</sup> 60 (2) <b>Optigray</b> <sup>®</sup> + Clear	50	8	11	0.29	0.24	0.30	1.67	
<b>Solarban</b> <sup>®</sup> 60 (2) <b>Solargray</b> <sup>®</sup> + Clear	35	6	10	0.29	0.24	0.25	1.40	
<b>Solexia</b> <sup>®</sup> + <b>Solarban</b> <sup>®</sup> 60 (3) Clear	61	10	10	0.29	0.24	0.37	1.65	
<b>Atlantica</b> <sup>®</sup> + <b>Solarban</b> <sup>®</sup> 60 (3) Clear	53	9	10	0.29	0.24	0.31	1.71	
<b>Azuria</b> <sup>®</sup> + <b>Solarban</b> <sup>®</sup> 60 (3) Clear	54	9	10	0.29	0.24	0.31	1.74	
<b>Solarblue</b> <sup>®</sup> + <b>Solarban</b> <sup>®</sup> 60 (3) Clear	45	7	9	0.29	0.24	0.33	1.36	
<b>Pacifica</b> <sup>®</sup> + <b>Solarban</b> <sup>®</sup> 60 (3) Clear	34	6	9	0.29	0.24	0.25	1.36	
<b>Solarbronze</b> <sup>®</sup> + <b>Solarban</b> <sup>®</sup> 60 (3) Clear	42	7	9	0.29	0.24	0.32	1.31	
<b>Optigray</b> <sup>®</sup> + <b>Solarban</b> <sup>®</sup> 60 (3) Clear	50	8	9	0.29	0.24	0.35	1.43	
<b>Solargray</b> <sup>®</sup> + <b>Solarban</b> <sup>®</sup> 60 (3) Clear	35	7	9	0.29	0.24	0.29	1.21	
<b>Graylite</b> <sup>®</sup> II + <b>Solarban</b> <sup>®</sup> 60 (3) Clear	7	4	8	0.29	0.24	0.13	0.54	
<b>Solarban<sup>®</sup> 67 Solar Control Low-E Glass</b>								
<b>Solarban</b> <sup>®</sup> 67 (2) Clear + Clear	54	19	16	0.29	0.24	0.29	1.86	
<b>Solarban</b> <sup>®</sup> 67 (2) <b>Starphire</b> <sup>®</sup> + <b>Starphire</b> <sup>®</sup>	57	20	16	0.29	0.24	0.30	1.90	
<b>Solarban</b> <sup>®</sup> 67 (2) <b>Acuity</b> <sup>™</sup> + <b>Acuity</b> <sup>™</sup>	56	19	16	0.29	0.24	0.30	1.87	
<b>Solarban</b> <sup>®</sup> 67 (2) <b>Solexia</b> <sup>®</sup> + Clear	47	16	16	0.29	0.24	0.25	1.88	
<b>Solarban</b> <sup>®</sup> 67 (2) <b>Atlantica</b> <sup>®</sup> + Clear	41	13	16	0.29	0.24	0.22	1.86	

1-Inch Insulating Glass Unit (IGU) Comparisons with Vitro Glass

Insulating Glass Unit Performance Comparisons 1-inch (25mm) units with 1/2-inch (13mm) airspace and two 1/4-inch (6mm) lites								
Glass Type		Visible Light Transmittance (VLT) <sup>2</sup>	Visible Light Reflectance <sup>2</sup>		(BTU/hr <sup>2</sup> ft <sup>2</sup> F) NFRC U-Value <sup>3</sup>		Solar Heat Gain Coefficient (SHGC) <sup>4</sup>	Light to Solar Gain (LSG) <sup>5</sup>
Outdoor Lite: Coating if Any (Surface) Glass	Indoor Lite: Coating if Any (Surface) Glass		Exterior %	Interior %	Winter Nighttime	Winter Argon		
Coated								
<b>Solarban® 67 Solar Control Low-E Glass (Continued)</b>								
Solarban® 67 (2) Azuria® + Clear		42	13	16	0.29	0.24	0.23	1.83
Solarban® 67 (2) Optiblue® + Clear		39	12	15	0.29	0.24	0.25	1.56
Solarban® 67 (2) Solarblue® + Clear		34	10	15	0.29	0.24	0.22	1.55
Solarban® 67 (2) Pacifica® + Clear		26	8	15	0.29	0.24	0.19	1.37
Solarban® 67 (2) Solarbronze® + Clear		32	10	15	0.29	0.24	0.22	1.45
Solarban® 67 (2) Optigray® + Clear		38	12	15	0.29	0.24	0.24	1.58
Solarban® 67 (2) Solargray® + Clear		27	8	15	0.29	0.24	0.20	1.35
Atlantica® + Solarban® 67 (3) Clear		41	11	18	0.29	0.24	0.29	1.41
Azuria® + Solarban® 67 (3) Clear		42	11	18	0.29	0.24	0.29	1.45
Solarblue® + Solarban® 67 (3) Clear		34	9	18	0.29	0.24	0.30	1.13
Pacifica® + Solarban® 67 (3) Clear		26	7	18	0.29	0.24	0.23	1.13
Solarbronze® + Solarban® 67 (3) Clear		32	9	18	0.29	0.24	0.29	1.10
Optigray® + Solarban® 67 (3) Clear		38	10	18	0.29	0.24	0.32	1.19
Solargray® + Solarban® 67 (3) Clear		27	8	18	0.29	0.24	0.26	1.04
Graylite® II + Solarban® 67 (3) Clear		5	4	18	0.29	0.24	0.12	0.42
<b>Solarban® 70XL Solar Control Low-E Glass<sup>†</sup></b>								
Solarban® 70XL (2) + Clear		64	12	13	0.28	0.24	0.27	2.37
Solarban® 70XL (2) Solexia® + Clear		58	10	13	0.28	0.24	0.27	2.15
Solarban® 70XL (2) Atlantica® + Clear		51	9	12	0.28	0.24	0.24	2.13
Solarban® 70XL (2) Azuria® + Clear		52	9	12	0.28	0.24	0.25	2.08
Solarban® 70XL (2) Solarblue® + Clear		42	8	12	0.28	0.24	0.23	1.83
Solarban® 70XL (2) Pacifica® + Clear		32	6	12	0.28	0.24	0.19	1.68
Solarban® 70XL (2) Solarbronze® + Clear		40	7	12	0.28	0.24	0.21	1.90
Solarban® 70XL (2) Optigray® + Clear		47	8	12	0.28	0.24	0.24	1.96
Solarban® 70XL (2) Solargray® + Clear		34	6	12	0.28	0.24	0.20	1.70
Solexia® + Solarban® 70XL (3) Clear		56	11	12	0.28	0.24	0.32	1.75
Atlantica® + Solarban® 70XL (3) Clear		49	10	11	0.28	0.24	0.28	1.75
Azuria® + Solarban® 70XL (3) Clear		49	9	11	0.28	0.24	0.29	1.69
Solarblue® + Solarban® 70XL (3) Clear		40	8	11	0.28	0.24	0.27	1.48
Pacifica® + Solarban® 70XL (3) Clear		31	6	10	0.28	0.24	0.22	1.41
Solarbronze® + Solarban® 70XL (3) Clear		38	8	11	0.28	0.24	0.26	1.46
Optigray® + Solarban® 70XL (3) Clear		45	9	11	0.28	0.24	0.29	1.55
Solargray® + Solarban® 70XL (3) Clear		32	7	11	0.28	0.24	0.24	1.33
Graylite® II + Solarban® 70XL (3) Clear		6	4	10	0.28	0.24	0.11	0.55
<b>Solarban® 72 Solar Control Low-E Glass</b>								
Solarban® 72 (2) Starphire® + Starphire®		68	13	14	0.28	0.24	0.28	2.43
Solarban® 72 (2) Acuity™ + Acuity™		67	13	14	0.29	0.24	0.28	2.39
<b>Solarban® 90 Solar Control Low-E Glass</b>								
Solarban® 90 (2) Clear + Clear		51	12	19	0.29	0.24	0.23	2.22
Solarban® 90 (2) Starphire® + Starphire®		54	13	20	0.29	0.24	0.23	2.35
Solarban® 90 (2) Acuity™ + Acuity™		53	12	19	0.29	0.24	0.23	2.30
Solarban® 90 (2) Solexia® + Clear		44	10	19	0.29	0.24	0.22	2.00
Solarban® 90 (2) Atlantica® + Clear		39	9	19	0.29	0.24	0.20	1.95
Solarban® 90 (2) Azuria® + Clear		39	9	19	0.29	0.24	0.21	1.86
Solarban® 90 (2) Optiblue® + Clear		37	8	19	0.29	0.24	0.20	1.85
Solarban® 90 (2) Solarblue® + Clear		32	8	18	0.29	0.24	0.19	1.68
Solarban® 90 (2) Pacifica® + Clear		24	6	18	0.29	0.24	0.17	1.41
Solarban® 90 (2) Solarbronze® + Clear		31	7	18	0.29	0.24	0.18	1.72
Solarban® 90 (2) Optigray® + Clear		36	8	19	0.29	0.24	0.20	1.80
Solarban® 90 (2) Solargray® + Clear		26	6	18	0.29	0.24	0.17	1.53
Solexia® + Solarban® 90 (3) Clear		44	16	12	0.29	0.24	0.30	1.47
Atlantica® + Solarban® 90 (3) Clear		39	13	12	0.29	0.24	0.26	1.50
Azuria® + Solarban® 90 (3) Clear		39	13	12	0.29	0.24	0.27	1.44
Solarblue® + Solarban® 90 (3) Clear		32	10	11	0.29	0.24	0.25	1.28
Pacifica® + Solarban® 90 (3) Clear		24	8	11	0.29	0.24	0.21	1.14
Solarbronze® + Solarban® 90 (3) Clear		30	10	11	0.29	0.24	0.24	1.25
Optigray® + Solarban® 90 (3) Clear		36	12	11	0.29	0.24	0.27	1.33
Solargray® + Solarban® 90 (3) Clear		25	8	11	0.29	0.24	0.22	1.14
Graylite® II + Solarban® 90 (3) Clear		5	4	11	0.29	0.24	0.11	0.45

1-Inch Insulating Glass Unit (IGU) Comparisons with Vitro Glass

Insulating Glass Unit Performance Comparisons 1-inch (25mm) units with 1/2-inch (13mm) airspace and two 1/4-inch (6mm) lites								
Glass Type Outdoor Lite: Coating if Any (Surface) Glass + Indoor Lite: Coating if Any (Surface) Glass	Visible Light Transmittance (VLT) <sup>2</sup>	Visible Light Reflectance <sup>2</sup>		(BTU/hr <sup>2</sup> ft <sup>2</sup> °F) NFRC U-Value <sup>3</sup>		Solar Heat Gain Coefficient (SHGC) <sup>4</sup>	Light to Solar Gain (LSG) <sup>5</sup>	
		Exterior %	Interior %	Winter Nighttime	Winter Argon			
Coated								
<b>Solarban® Z50 Solar Control Low-E Glass††</b>								
Solarban® z50 (2) <i>Optiblu</i> ® + Clear	51	8	11	0.29	0.24	0.32	1.59	
<b>Solarban® Z75 Solar Control Low-E Glass††</b>								
Solarban® z75 (2) <i>Optiblu</i> ® + Clear	48	9	12	0.28	0.24	0.24	2.00	
<b>Solarban® R100 Solar Control Low-E Glass</b>								
Solarban® R100 (2) Clear + Clear	42	32	14	0.29	0.25	0.23	1.83	
Solarban® R100 (2) <i>Starphire</i> ® + <i>Starphire</i> ®	44	33	14	0.29	0.25	0.23	1.91	
Solarban® R100 (2) <i>Acuity</i> ™ + <i>Acuity</i> ™	43	33	13	0.29	0.25	0.23	1.87	
Solarban® R100 (2) <i>Solexia</i> ® + Clear	36	25	13	0.29	0.25	0.21	1.71	
Solarban® R100 (2) <i>Atlantica</i> ® + Clear	32	20	13	0.29	0.25	0.19	1.68	
Solarban® R100 (2) <i>Azuria</i> ® + Clear	32	21	13	0.29	0.25	0.19	1.68	
Solarban® R100 (2) <i>Optiblu</i> ® + Clear	30	19	13	0.29	0.24	0.20	1.50	
Solarban® R100 (2) <i>Solarblue</i> ® + Clear	26	15	13	0.29	0.25	0.19	1.37	
Solarban® R100 (2) <i>Pacifica</i> ® + Clear	20	11	13	0.29	0.25	0.16	1.25	
Solarban® R100 (2) <i>Solarbronze</i> ® + Clear	25	15	13	0.29	0.25	0.18	1.39	
Solarban® R100 (2) <i>Optigray</i> ® + Clear	29	18	13	0.29	0.25	0.20	1.45	
Solarban® R100 (2) <i>Solargray</i> ® + Clear	21	12	13	0.29	0.25	0.17	1.24	
<b>Vistacool® Subtly Reflective Glass</b>								
Vistacool® (2) <i>Azuria</i> ® + Clear	47	21	32	0.47	0.45	0.34	1.38	
Vistacool® (2) <i>Pacifica</i> ® + Clear	29	11	31	0.47	0.45	0.32	0.91	
<b>Solarcool® Reflective Glass</b>								
Solarcool® (2) <i>Solexia</i> ® + Clear	27	24	38	0.47	0.45	0.31	0.87	
Solarcool® (2) <i>Azuria</i> ® + Clear	24	20	38	0.47	0.45	0.25	0.96	
Solarcool® (2) <i>Pacifica</i> ® + Clear	15	10	38	0.47	0.45	0.25	0.60	
Solarcool® (2) <i>Solarblue</i> ® + Clear	20	15	38	0.47	0.45	0.32	0.63	
Solarcool® (2) <i>Solarbronze</i> ® + Clear	19	14	38	0.47	0.45	0.34	0.56	
Solarcool® (2) <i>Solargray</i> ® + Clear	16	11	38	0.47	0.45	0.32	0.50	
<b>Vistacool® and Solarcool® with Solarban® 60 Solar Control Low-E (3)</b>								
Vistacool® (2) <i>Azuria</i> ® + Solarban® 60 (3) Clear	42	20	24	0.29	0.24	0.26	1.62	
Vistacool® (2) <i>Pacifica</i> ® + Solarban® 60 (3) Clear	26	11	23	0.29	0.24	0.21	1.24	
Solarcool® (2) <i>Azuria</i> ® + Solarban® 60 (3) Clear	21	19	29	0.29	0.24	0.17	1.24	
Solarcool® (2) <i>Solarblue</i> ® + Solarban® 60 (3) Clear	17	14	29	0.29	0.24	0.18	0.94	
Solarcool® (2) <i>Pacifica</i> ® + Solarban® 60 (3) Clear	13	10	29	0.29	0.24	0.15	0.87	
Solarcool® (2) <i>Solarbronze</i> ® + Solarban® 60 (3) Clear	17	14	29	0.29	0.24	0.18	0.94	
Solarcool® (2) <i>Solargray</i> ® + Solarban® 60 (3) Clear	14	11	29	0.29	0.24	0.17	0.82	
<b>Vistacool® and Solarcool® with Solarban® 70XL Solar Control Low-E (3)†</b>								
Vistacool® (2) <i>Azuria</i> ® + Solarban® 70XL (3)	38	21	23	0.28	0.24	0.24	1.58	
Vistacool® (2) <i>Pacifica</i> ® + Solarban® 70XL (3)	24	11	22	0.28	0.24	0.19	1.26	
Solarcool® (2) <i>Azuria</i> ® + Solarban® 70XL (3)	19	19	27	0.28	0.24	0.15	1.27	
Solarcool® (2) <i>Solarblue</i> ® + Solarban® 70XL (3)	16	14	27	0.28	0.24	0.15	1.07	
Solarcool® (2) <i>Pacifica</i> ® + Solarban® 70XL (3)	12	10	27	0.28	0.24	0.13	0.92	
Solarcool® (2) <i>Solarbronze</i> ® + Solarban® 70XL (3)	15	14	27	0.28	0.24	0.15	1.00	
Solarcool® (2) <i>Solargray</i> ® + Solarban® 70XL (3)	13	11	27	0.28	0.24	0.14	0.93	

All performance data calculated using LBNL Window 7.3 software and represents center of glass performance data. For detailed information on the methodologies used to calculate the aesthetic and performance values in this table, please visit vitrogazings.com or request our Architectural Glass Catalog.

- † Solarban® 70XL for annealed applications is applied to *Starphire*® glass; heat treated applications will require either clear or *Starphire*® glass depending on manufacturing process.
- †† Solarban® 72 *Starphire*® data based on using *Starphire*® glass for both interior and exterior lites.
- ††† *Optiblu*® is a unique substrate by Vitro Architectural Glass (formerly PPG glass) designed specifically for Solarban® z50 and Solarban® z75 glasses.
- 1. Data is based on center of glass performance of representative factory production samples. Actual values may vary due to the production process and manufacturing tolerances. All tabulated data is based on NFRC methodology using the LBNL Window 6.3 software. Variations from previously published data are due to minor changes in the LBNL Window 7.3 software versus Version 6.3.
- 2. Transmittance and Reflectance values based on spectrophotometric measurements and energy distribution of solar radiation.
- 3. U-value is the overall coefficient of heat transmittance or heat flow measured in BTU/hr. • ft² • °F. Lower U-values indicate better insulating performance.
- 4. 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.
- 5. Light to solar gain (LSG) ratio is the ratio of visible light transmittance to solar heat gain coefficient.

