Vitro®
Architectural Glass

PERFORMANCE DATA
for One-Inch Insulating Glass Units

Insulating Glass Unit Performance for 1-inch (25 mm) units with 1/2-inch (13 mm) airspace and two 1/4-inch (6 mm) lites								
Glass Type Outdoor Lite: Coating if Any (Surface) Glass + Indoor Lite: Coating if Any (Surface) Glass		Visible Light Transmittance (VLT)[2] %	Visible Light Reflectance[2]		(Btu/hr•ft²•°F) NFRC U-Value[3]		Solar Heat Gain Coefficient (SHGC)[4]	Color Rendering Index (CRI)[5]
			Exterior %	Interior %	Winter Nighttime	Winter Argon		
Uncoated								
	CLEAR Glass + Clear	79	15	15	0.47	0.45	0.70	95
	ACUITY™ + ACUITY™	82	15	15	0.47	0.45	0.78	98
	STARPHIRE® + STARPHIRE®	84	15	15	0.47	0.45	0.82	99
	SOLEXIA® + Clear	69	13	15	0.47	0.45	0.50	86
	ATLANTICA® + Clear	60	10	14	0.47	0.45	0.40	84
	AZURIA® + Clear	61	11	14	0.47	0.45	0.39	77
	SOLARBLUE® + Clear	50	9	13	0.47	0.45	0.49	84
	PACIFICA® + Clear	38	7	13	0.47	0.45	0.36	72
	SOLARBRONZE® + Clear	47	8	13	0.47	0.45	0.51	95
	OPTIGRAY® + Clear	56	10	13	0.47	0.45	0.52	94
	SOLARGRAY® + Clear	40	7	13	0.47	0.45	0.46	93
	GRAYLITE® II + Clear	8	4	12	0.47	0.45	0.22	85
Coated								
SOLARBAN® 60 Solar Control Low-E Glass								
	SOLARBAN 60 (2) Clear + Clear	70	11	12	0.29	0.24	0.39	95
	SOLARBAN 60 (2) ACUITY + ACUITY	73	11	12	0.29	0.24	0.41	97
	SOLARBAN 60 (2) STARPHIRE + STARPHIRE	74	11	12	0.29	0.24	0.41	98
	SOLARBAN 60 (2) SOLEXIA + Clear	61	9	12	0.29	0.24	0.32	90
	SOLARBAN 60 (2) ATLANTICA + Clear	53	8	11	0.29	0.24	0.27	86
	SOLARBAN 60 (2) AZURIA + Clear	54	8	11	0.29	0.24	0.28	78
	SOLARBAN 60 (2) SOLARBLUE + Clear	45	7	11	0.29	0.24	0.29	94
	SOLARBAN 60 (2) PACIFICA + Clear	34	6	10	0.29	0.24	0.23	86
	SOLARBAN 60 (2) SOLARBRONZE + Clear	42	7	11	0.29	0.24	0.28	95
	SOLARBAN 60 (2) OPTIGRAY + Clear	50	8	11	0.29	0.24	0.30	94
	SOLARBAN 60 (2) SOLARGRAY + Clear	35	6	10	0.29	0.24	0.25	95
	SOLEXIA + SOLARBAN 60 (3) Clear	61	10	10	0.29	0.24	0.37	88
	ATLANTICA + SOLARBAN 60 (3) Clear	53	8	10	0.29	0.24	0.31	84
	AZURIA + SOLARBAN 60 (3) Clear	54	9	10	0.29	0.24	0.31	77
	SOLARBLUE + SOLARBAN 60 (3) Clear	45	7	9	0.29	0.24	0.33	84
	PACIFICA + SOLARBAN 60 (3) Clear	34	6	9	0.29	0.24	0.25	72
	SOLARBRONZE + SOLARBAN 60 (3) Clear	42	7	9	0.29	0.24	0.32	95
	OPTIGRAY + SOLARBAN 60 (3) Clear	50	8	9	0.29	0.24	0.35	93
	SOLARGRAY + SOLARBAN 60 (3) Clear	35	7	9	0.29	0.24	0.29	93
	GRAYLITE II + SOLARBAN 60 (3) Clear	7	4	8	0.29	0.24	0.13	84
SOLARBAN® 60 Solar Control Low-E Glass on OPTIBLUE®†† (formerly SOLARBAN® z50 Glass)								
	SOLARBAN 60 (2) OPTIBLUE + Clear	51	8	11	0.29	0.24	0.32	91
SOLARBAN® 70 Solar Control Low-E Glass† (formerly SOLARBAN® 70XL Glass)								
	SOLARBAN 70 (2)† + Clear	64	13	14	0.28	0.24	0.27	91
	SOLARBAN 70 (2) SOLEXIA + Clear	56	11	14	0.28	0.24	0.26	85
	SOLARBAN 70 (2) ATLANTICA + Clear	49	10	13	0.28	0.24	0.23	81
	SOLARBAN 70 (2) AZURIA + Clear	50	10	13	0.28	0.24	0.24	69
	SOLARBAN 70 (2) SOLARBLUE + Clear	41	8	13	0.28	0.24	0.22	81
	SOLARBAN 70 (2) PACIFICA + Clear	31	7	13	0.28	0.24	0.19	69
	SOLARBAN 70 (2) SOLARBRONZE + Clear	39	8	13	0.28	0.24	0.20	93
	SOLARBAN 70 (2) OPTIGRAY + Clear	46	9	13	0.28	0.24	0.23	89
	SOLARBAN 70 (2) SOLARGRAY + Clear	32	7	13	0.28	0.24	0.19	89
	SOLEXIA + SOLARBAN 70 (3)†	56	11	12	0.28	0.24	0.32	85
	ATLANTICA + SOLARBAN 70 (3)†	48	9	11	0.28	0.24	0.28	81
	AZURIA + SOLARBAN 70 (3)†	49	9	11	0.28	0.24	0.29	75
	SOLARBLUE + SOLARBAN 70 (3)†	41	8	12	0.28	0.24	0.27	81
	PACIFICA + SOLARBAN 70 (3)†	31	6	10	0.28	0.24	0.22	69
	SOLARBRONZE + SOLARBAN 70 (3)†	38	8	11	0.28	0.24	0.26	93
	OPTIGRAY + SOLARBAN 70 (3)†	46	9	12	0.28	0.24	0.28	90
	SOLARGRAY + SOLARBAN 70 (3)†	32	7	11	0.28	0.24	0.24	89
	GRAYLITE II + SOLARBAN 70 (3)†	6	4	10	0.28	0.24	0.11	81
SOLARBAN® 70 Solar Control Low-E Glass on OPTIBLUE®†† (formerly SOLARBAN® z75 Glass)								
	SOLARBAN 70 (2) OPTIBLUE + Clear	46	9	13	0.28	0.24	0.23	87

Insulating Glass Unit Performance for 1-inch (25 mm) units with 1/2-inch (13 mm) airspace and two 1/4-inch (6 mm) lites								
Glass Type Outdoor Lite: Coating if Any (Surface) Glass + Indoor Lite: Coating if Any (Surface) Glass		Visible Light Transmittance (VLT)[2] %	Visible Light Reflectance[2]		(Btu/hr•ft²•˚F) NFRC U-Value[3]		Solar Heat Gain Coefficient (SHGC)[4]	Color Rendering Index (CRI)[5]
			Exterior %	Interior %	Winter Nighttime	Winter Argon		
SOLARBAN® 72 Solar Control Low-E Glass								
	SOLARBAN 72 (2) ACUITY + ACUITY	67	13	14	0.28	0.24	0.28	94
	SOLARBAN 72 (2) STARPHIRE + STARPHIRE	68	13	14	0.28	0.24	0.28	95
SOLARBAN® 90 Solar Control Low-E Glass								
	SOLARBAN 90 (2) Clear + Clear	51	12	19	0.29	0.24	0.23	92
	SOLARBAN 90 (2) ACUITY + ACUITY	53	12	19	0.29	0.24	0.23	94
	SOLARBAN 90 (2) STARPHIRE + STARPHIRE	54	13	20	0.29	0.24	0.23	95
	SOLARBAN 90 (2) SOLEXIA + Clear	44	10	19	0.29	0.24	0.22	86
	SOLARBAN 90 (2) ATLANTICA + Clear	39	9	19	0.29	0.24	0.20	82
	SOLARBAN 90 (2) AZURIA + Clear	39	9	19	0.29	0.24	0.21	75
	SOLARBAN 90 (2) OPTIBLUE + Clear	37	8	19	0.29	0.24	0.20	88
	SOLARBAN 90 (2) SOLARBLUE + Clear	32	8	18	0.29	0.24	0.19	81
	SOLARBAN 90 (2) PACIFICA + Clear	24	6	18	0.29	0.24	0.17	69
	SOLARBAN 90 (2) SOLARBRONZE + Clear	31	7	18	0.29	0.24	0.18	94
	SOLARBAN 90 (2) OPTIGRAY + Clear	36	8	19	0.29	0.24	0.20	90
	SOLARBAN 90 (2) SOLARGRAY + Clear	26	6	18	0.29	0.24	0.17	90
	SOLEXIA + SOLARBAN 90 (3) Clear	44	16	12	0.29	0.24	0.30	86
	ATLANTICA + SOLARBAN 90 (3) Clear	39	13	12	0.29	0.24	0.26	82
	AZURIA + SOLARBAN 90 (3) Clear	39	13	12	0.29	0.24	0.27	75
	SOLARBLUE + SOLARBAN 90 (3) Clear	32	10	11	0.29	0.24	0.25	81
	PACIFICA + SOLARBAN 90 (3) Clear	24	8	11	0.29	0.24	0.21	69
	SOLARBRONZE + SOLARBAN 90 (3) Clear	30	10	11	0.29	0.24	0.24	94
	OPTIGRAY + SOLARBAN 90 (3) Clear	36	12	11	0.29	0.24	0.27	90
	SOLARGRAY + SOLARBAN 90 (3) Clear	25	8	11	0.29	0.24	0.22	90
	GRAYLITE II + SOLARBAN 90 (3) Clear	5	4	11	0.29	0.24	0.11	82
SOLARBAN® R100 Neutral-Reflective Low-E Glass								
	SOLARBAN R100 (2) Clear + Clear	42	32	14	0.29	0.25	0.23	93
	SOLARBAN R100 (2) ACUITY + ACUITY	43	33	13	0.29	0.25	0.23	92
	SOLARBAN R100 (2) STARPHIRE + STARPHIRE	44	33	14	0.29	0.25	0.23	93
	SOLARBAN R100 (2) SOLEXIA + Clear	36	25	13	0.29	0.25	0.21	83
	SOLARBAN R100 (2) ATLANTICA + Clear	31	20	13	0.29	0.25	0.19	80
	SOLARBAN R100 (2) AZURIA + Clear	32	21	13	0.29	0.25	0.19	72
	SOLARBAN R100 (2) OPTIBLUE + Clear	30	19	13	0.29	0.25	0.20	86
	SOLARBAN R100 (2) SOLARBLUE + Clear	26	15	13	0.29	0.25	0.19	79
	SOLARBAN R100 (2) PACIFICA + Clear	20	11	13	0.29	0.25	0.16	66
	SOLARBAN R100 (2) SOLARBRONZE + Clear	25	15	13	0.29	0.25	0.18	95
	SOLARBAN R100 (2) OPTIGRAY + Clear	29	18	13	0.29	0.25	0.20	89
	SOLARBAN R100 (2) SOLARGRAY + Clear	21	12	13	0.29	0.25	0.17	89
SOLARBAN® R77 Neutral-Reflective Low-E Glass								
	SOLARBAN R77 (2) Clear + Clear	47	25	16	0.29	0.24	0.25	94
	SOLARBAN R77 (2) ACUITY + ACUITY	49	26	16	0.29	0.24	0.25	95
	SOLARBAN R77 (2) STARPHIRE + STARPHIRE	50	26	16	0.29	0.24	0.25	98
	SOLARBAN R77 (2) SOLEXIA + Clear	41	20	16	0.29	0.24	0.23	87
	SOLARBAN R77 (2) ATLANTICA + Clear	35	16	16	0.29	0.24	0.20	83
	SOLARBAN R77 (2) AZURIA + Clear	36	17	16	0.29	0.24	0.21	76
	SOLARBAN R77 (2) OPTIBLUE + Clear	34	15	16	0.29	0.24	0.21	90
	SOLARBAN R77 (2) SOLARBLUE + Clear	30	13	16	0.29	0.24	0.20	83
	SOLARBAN R77 (2) PACIFICA + Clear	23	9	15	0.29	0.24	0.17	70
	SOLARBAN R77 (2) SOLARBRONZE + Clear	28	12	16	0.29	0.24	0.19	96
	SOLARBAN R77 (2) OPTIGRAY + Clear	33	15	16	0.29	0.24	0.21	93
	SOLARBAN R77 (2) SOLARGRAY + Clear	23	10	15	0.29	0.24	0.18	93
SOLARBAN® R67 Neutral-Reflective Low-E Glass (formerly SOLARBAN® 67 Glass)								
	SOLARBAN R67 (2) Clear + Clear	54	19	16	0.29	0.24	0.29	92
	SOLARBAN R67 (2) ACUITY + ACUITY	56	19	16	0.29	0.24	0.30	94
	SOLARBAN R67 (2) STARPHIRE + STARPHIRE	57	20	16	0.29	0.24	0.30	95
	SOLARBAN R67 (2) SOLEXIA + Clear	47	16	16	0.29	0.24	0.25	85
	SOLARBAN R67 (2) ATLANTICA + Clear	41	13	16	0.29	0.24	0.22	82
	SOLARBAN R67 (2) AZURIA + Clear	42	13	16	0.29	0.24	0.23	74
	SOLARBAN R67 (2) OPTIBLUE + Clear	39	12	15	0.29	0.24	0.25	88

Insulating Glass Unit Performance for 1-inch (25 mm) units with 1/2-inch (13 mm) airspace and two 1/4-inch (6 mm) lites								
Glass Type: Outdoor Lite: Coating if Any (Surface) Glass + Indoor Lite: Coating if Any (Surface) Glass	Visible Light Transmittance (VLT)[2] %	Visible Light Reflectance[2]		(Btu/hr•ft²•°F) NFRC U-Value[3]		Solar Heat Gain Coefficient (SHGC)[4]	Color Rendering Index (CRI)[5]
		Exterior %	Interior %	Winter Nighttime	Winter Argon		
SOLARBAN® R67 Neutral-Reflective Low-E Glass (formerly SOLARBAN® 67 Glass) (Continued)							
SOLARBAN R67 (2) SOLARBLUE + Clear	34	10	15	0.29	0.24	0.23	81
SOLARBAN R67 (2) PACIFICA + Clear	26	8	15	0.29	0.24	0.19	68
SOLARBAN R67 (2) SOLARBRONZE + Clear	32	10	15	0.29	0.24	0.22	95
SOLARBAN R67 (2) OPTIGRAY + Clear	38	12	15	0.29	0.24	0.24	90
SOLARBAN R67 (2) SOLARGRAY + Clear	27	8	15	0.29	0.24	0.20	90
SUNGATE® 400 Low-E Glass							
SUNGATE 400 (2) Clear + Clear	76	14	14	0.32	0.28	0.60	96
SUNGATE 400 (2) STARPHIRE + STARPHIRE	80	14	14	0.32	0.28	0.68	100
CLEAR + SUNGATE 400 (3) Clear	76	14	14	0.32	0.28	0.63	96
SOLEXIA + SUNGATE 400 (3) Clear	66	11	13	0.32	0.28	0.44	89
ATLANTICA + SUNGATE 400 (3) Clear	58	9	12	0.32	0.28	0.35	85
AZURIA + SUNGATE 400 (3) Clear	59	10	12	0.32	0.28	0.34	78
SOLARBLUE + SUNGATE 400 (3) Clear	48	8	12	0.32	0.28	0.42	85
PACIFICA + SUNGATE 400 (3) Clear	37	7	11	0.32	0.28	0.30	72
SOLARBRONZE + SUNGATE 400 (3) Clear	46	8	12	0.32	0.28	0.44	95
OPTIGRAY + SUNGATE 400 (3) Clear	54	9	12	0.32	0.28	0.46	94
SOLARGRAY + SUNGATE 400 (3) Clear	38	7	12	0.32	0.28	0.39	94
GRAYLITE II + SUNGATE 400 (3) Clear	8	4	11	0.32	0.28	0.15	86
VISTACOOL® Subtly Reflective Glass							
VISTACOOL (2) AZURIA + Clear	47	21	32	0.47	0.45	0.34	76
VISTACOOL (2) PACIFICA + Clear	29	11	31	0.47	0.45	0.32	73
SOLARCOOL® Reflective Glass							
SOLARCOOL (2) AZURIA + Clear	24	20	38	0.47	0.45	0.25	85
SOLARCOOL (2) PACIFICA + Clear	15	10	38	0.47	0.45	0.25	81
SOLARCOOL (2) SOLARBLUE + Clear	20	15	38	0.47	0.45	0.32	95
SOLARCOOL (2) SOLARBRONZE + Clear	19	14	38	0.47	0.45	0.34	85
SOLARCOOL (2) SOLARGRAY + Clear	16	11	38	0.47	0.45	0.32	92
VISTACOOL® and SOLARCOOL® with SOLARBAN® 60 Solar Control Low-E Glass (3)							
VISTACOOL (2) AZURIA + SOLARBAN 60 (3) Clear	42	20	24	0.29	0.24	0.26	78
VISTACOOL (2) PACIFICA + SOLARBAN 60 (3) Clear	26	11	23	0.29	0.24	0.22	73
SOLARCOOL (2) AZURIA + SOLARBAN 60 (3) Clear	21	19	29	0.29	0.24	0.17	85
SOLARCOOL (2) SOLARBLUE + SOLARBAN 60 (3) Clear	17	14	29	0.29	0.24	0.18	92
SOLARCOOL (2) PACIFICA + SOLARBAN 60 (3) Clear	13	10	29	0.29	0.24	0.15	80
SOLARCOOL (2) SOLARBRONZE + SOLARBAN 60 (3) Clear	17	14	29	0.29	0.24	0.18	85
SOLARCOOL (2) SOLARGRAY + SOLARBAN 60 (3) Clear	14	11	29	0.29	0.24	0.17	91
VISTACOOL® and SOLARCOOL® with SOLARBAN® 70 Solar Control Low-E Glass (3)† (formerly SOLARBAN® 70XL Glass)							
VISTACOOL (2) AZURIA + SOLARBAN 70†	38	21	23	0.28	0.24	0.24	76
VISTACOOL (2) PACIFICA + SOLARBAN 70†	24	11	22	0.28	0.24	0.19	71
SOLARCOOL (2) AZURIA + SOLARBAN 70†	19	19	27	0.28	0.24	0.16	82
SOLARCOOL (2) SOLARBLUE + SOLARBAN 70†	16	14	27	0.28	0.24	0.15	89
SOLARCOOL (2) PACIFICA + SOLARBAN 70†	12	10	27	0.28	0.24	0.13	77
SOLARCOOL (2) SOLARBRONZE + SOLARBAN 70†	15	14	27	0.28	0.24	0.15	88
SOLARCOOL (2) SOLARGRAY + SOLARBAN 70†	13	11	27	0.28	0.24	0.14	91

Note: In reference to IGU configurations, (2) refers to the second surface of the glass and (3) refers to the third surface of the glass.

† *Solarban*® 70 (formerly *Solarban*® 70XL) for annealed applications is applied to low-iron glass; heat treated applications will require either clear or low-iron glass depending on manufacturing process.

†† *Optiblue*® is a unique substrate by Vitro Glass designed for use with several *Solarban*® coatings.

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 7.3 software.
2. Transmittance and Reflectance values based on spectrophotometric measurements and energy distribution of solar radiation.
3. U-Value – A measure of the insulating characteristics of the glass or how much heat gain or loss occurs through the glass due to the difference between indoor and outdoor temperatures and is measured Btu/hr•ft²•°F. The lower the number, the better the insulating performance. This number is the reciprocal of the R-value. Winter argon represents the winter nighttime U-value performance when the cavity is filled with a 90% argon/10% air/gas mixture.
4. Solar Heat Gain Coefficient (SHGC) – Measures how well a window blocks (or shades) the heat from sunlight. SHGC is the fraction of solar radiation transmitted through a window or skylight, as well as the amount that is absorbed by the glass and reradiated to the interior. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits and the greater the shading ability. The SHGC is similar to the Shading Coefficient (SC), but also accounts for absorbed, converted and inwardly radiated solar energy.
5. Color Rendering Index (CRI) is a measurement from 0 to 100 of how accurately a color is reproduced under certain lighting conditions, relative to natural light. A value of 100 would indicate an unobstructed view. For glass, the color rendering index is calculated using the LBNL Optics 6 software following EN410 methodology, which is defined as the "change in color of an object as a result of the light being transmitted by the glass.

Vitro Architectural Glass