



## PRODUCT AND QUALITY SYSTEM CERTIFICATION



CERTIFICATE NO: 25277



CSG Certification-ISO 9001:2008



ISO Certificate



CSG Certification-Certified Processor






Glass Product Certificate-Sirim 2016



# DATA PERFORMANCE

## Monolithic – Single Glazing

Category	Aesthetics	Code	Nominal Thickness (mm)	Visible		Solar		SC	SHGC	U value (W/m <sup>2</sup> ·K)	RHG (W/m <sup>2</sup> )	UV Transmittance (%)					
				Transmittance (%)	Reflectance (%)		Transmittance (%)						Reflectance (%)				
					External	Internal							External	Internal	Absorptance (%)		
 <b>Clear Float Glass</b>	Clear	FL	3	90	8	8	85	8	8	8	1.00	0.87	5.9	675	73		
			4	90	8	8	84	8	8	9	0.99	0.86	5.9	667	70		
			5	90	8	8	82	7	10	0.98	0.85	5.9	659	68			
			6	89	8	8	80	7	12	0.97	0.84	5.8	650	65			
			8	89	8	8	78	7	15	0.94	0.82	5.7	636	62			
			10	88	8	8	75	7	18	0.92	0.80	5.7	621	58			
			12	85	8	8	67	6	27	0.86	0.75	5.6	585	52			
			15	83	7	7	60	6	35	0.82	0.71	5.5	554	43			
			19	81	7	7	55	6	39	0.78	0.67	5.4	527	43			
			 <b>Body Tinted Float Glass</b>	Light Green	LTG	5	78	7	7	49	6	6	0.72	0.62	5.9	493	33
						6	75	7	7	44	5	5	0.68	0.59	5.8	470	28
						8	70	7	7	36	5	58	0.63	0.55	5.8	436	23
						10	66	7	7	31	5	64	0.59	0.51	5.7	410	18
						12	62	6	6	27	5	68	0.56	0.49	5.6	392	14
						5	70	7	7	36	5	58	0.63	0.54	5.9	436	22
				Dark Green	DTG	6	66	6	6	32	5	63	0.59	0.51	5.8	414	18
						6	63	6	6	55	6	39	0.77	0.67	5.8	528	33
						8	55	6	6	47	5	48	0.71	0.61	5.7	486	27
						6	45	5	5	46	5	48	0.70	0.61	5.8	485	22
8	36	5				5	37	5	58	0.63	0.55	5.7	440	16			
5	22	5				5	42	6	52	0.66	0.57	6.3	403	41			
Euro Grey	EG	6	15	5	5	34	5	61	0.60	0.52	6.3	370	38				
		5	55	6	6	55	5	39	0.78	0.67	5.8	530	22				
		6	50	5	5	51	5	44	0.74	0.64	5.8	508	18				
		5	27	27	-	28	-	-	0.47	0.40	5.3	-	4				
		6	25	24	-	26	-	-	0.45	0.39	5.2	-	4				
		5	25	24	-	28	-	-	0.46	0.40	5.3	-	4				
 <b>Reflective Glass</b>	Reflective Blue	RB	6	21	21	-	23	-	16	0.42	0.36	5.2	-	3			
			5	27	27	-	28	-	-	0.47	0.40	5.3	-	4			
			6	25	24	-	26	-	-	0.45	0.39	5.2	-	4			
			5	25	24	-	28	-	-	0.46	0.40	5.3	-	4			
			6	21	21	-	23	-	-	0.42	0.36	5.2	-	3			
			5	27	27	-	28	-	-	0.47	0.40	5.3	-	4			

## Solar Control Low-E Glass

Category	Aesthetics	Code	Nominal Thickness (mm)	Visible		Solar		SHGC	U value (W/m <sup>2</sup> ·K)	RHG (W/m <sup>2</sup> )	UV Transmittance (%)			
				Transmittance (%)	Reflectance (%)		Reflectance (%)					Absorptance (%)		
					External	Internal	External						Internal	
	Neutral	ET 125	6	28	27	9	19	22	27	58	0.36	3.90	249	9
	Green	ET 425	6	23	20	9	12	12	27	76	0.32	3.90	224	4
	Blue	ET 725	6	18	14	9	11	10	27	79	0.31	3.90	219	4
	Neutral	ET 150	6	49	14	9	37	12	18	51	0.58	4.80	397	24
	Green	ET 450	6	41	10	10	22	7	19	70	0.47	4.90	332	11
	Blue	ET 750	6	32	8	9	20	7	18	73	0.45	4.80	319	11
	Graphite	ST 136	6	37	22	18	31	-	-	52	0.51	4.44	5.50	-
	Dew Drop	ST 150	6	51	18	17	45	-	-	41	0.64	5.56	5.70	-
	Sparkling Ice	ST 167	6	67	19	19	62	-	-	24	0.78	6.67	5.60	-
	Titanium Blue	ST 120	6	22	21	29	18	-	-	63	0.38	5.30	-	-
	Blue Isle	ST 708	6	5	21	38	3	-	-	81	0.19	3.60	-	-
	Tranquil Blue	ST 720	6	13	16	27	9	-	-	79	0.32	5.20	-	-
	Blue Breeze	ST 736	6	24	12	18	18	-	-	73	0.41	5.50	-	-
	Royale Blue	ST 750	6	33	10	16	25	-	-	67	0.48	5.60	-	-
	Blue Ray	ST 767	6	43	11	18	34	-	-	58	0.56	5.60	-	-
	Turquoise	ST 436	6	30	16	18	17	-	-	73	0.41	5.52	-	-
	Blue Green	ST 450	6	42	14	16	24	-	-	67	0.48	5.67	-	-
	Deep Green	ST 408	6	6	32	38	3	-	-	80	0.19	3.61	-	-
	Aquamarine	ST 420	6	16	23	27	9	-	-	78	0.32	5.20	-	-
	Emerald Glaze	ST 467	6	55	14	18	32	-	-	59	0.54	5.64	-	-
	Platinum	ST 108	6	8	44	38	6	-	-	56	0.17	3.60	-	-
	Sterling Silver	ST 120	6	20	32	27	17	-	-	58	0.34	5.20	-	-

Crystol  
Safety Glass  
**Solar Control  
Low-E Glass**

## DGU Low-E Glass

Category	Aesthetics	Code	Nominal Thickness (mm)	Transmittance (%)		Visible Reflectance (%)		SC	SHGC	U value (W/m <sup>2</sup> -K)
				Transmittance (%)		Reflectance (%)				
				External	Internal	External	Internal			
	Neutral	KNT 140	24	37	23	12	0.32	0.28	1.8	
	Neutral	KNT 155	24	47	17	10	0.41	0.36	1.9	
	Neutral	KNT 164	24	57	14	10	0.51	0.44	1.9	
	Green	KNT 464	24	47	11	10	0.34	0.30	1.9	
	Green	KNT 455	24	39	13	10	0.29	0.25	1.9	
	Green	KNT 440	24	30	17	12	0.24	0.21	1.8	
	Blue	KNT 764	24	37	8	9	0.33	0.29	1.9	
	Blue	KNT 755	24	31	10	10	0.28	0.24	1.9	
	Blue	KNT 740	24	24	12	12	0.23	0.20	1.8	
	Blue	KNT 140	24	36	24	17	0.33	0.29	1.8	
	Neutral	SKN 174	24	67	10	12	0.44	0.38	1.6	
	Neutral	SKN 165	24	59	15	17	0.37	0.32	1.6	
	Neutral	SKN 154	24	50	18	20	0.30	0.26	1.6	
	Neutral	SKN 144	24	40	21	13	0.26	0.23	1.6	
	Green	SKN 454	24	42	14	26	0.27	0.23	1.5	
	Green	SKN 444	24	33	15	12	0.23	0.20	1.6	
	Blue	SKN 754	24	32	10	25	0.22	0.19	1.5	
	Blue	SKN 744	24	26	11	12	0.21	0.18	1.6	
	Neutral	ST 167	24	59	22	23	0.67	0.58	2.8	
	Neutral-grey	ST 150	24	46	20	21	0.52	0.46	2.8	
	Silver-grey	ST 136	24	33	23	23	0.40	0.34	2.8	
	Silver	ST 120	24	18	32	30	0.25	0.22	2.6	
	Silver	ST 108	24	7	44	38	0.12	0.10	1.9	
	Green	ST 467	24	49	17	22	0.42	0.36	2.8	
	Green	ST 450	24	37	15	21	0.35	0.30	2.8	
	Green	ST 436	24	27	17	23	0.28	0.25	2.8	
	Green	ST 420	24	15	23	30	0.20	0.18	2.6	
	Green	ST 408	24	6	32	38	0.11	0.10	1.9	
	Blue	ST 767	24	38	12	22	0.43	0.37	2.8	
	Blue	ST 750	24	30	11	21	0.35	0.31	2.8	
	Blue	ST 736	24	22	12	22	0.28	0.25	2.8	
	Blue	ST 720	24	12	16	29	0.20	0.18	2.6	
	Blue	ST 708	24	5	21	38	0.11	0.10	1.9	
	Blue	STB 136	24	33	18	21	0.39	0.34	2.7	
	Blue	STB 120	24	20	22	31	0.27	0.24	2.7	
	Blue-green	STB 436	24	27	14	21	0.27	0.24	2.7	
	Blue-green	STB 420	24	16	16	31	0.21	0.18	2.7	

DGU constructed with 6mm Low E Glass - 12mm Air Space - 6mm Clear Glass

## Heat and Light Control Characteristics of Laminated Glass

Category	Aesthetics	Nominal Thickness (mm)	Solar Transmittance (%)	Visible Light Transmittance (%)	Shading Coefficient (SC)	Gain Coefficient (SHGC)	U-Factor W/M <sup>2</sup> /K	Relative Heat Gain (W/m <sup>2</sup> )	Transmitted UV (%)	Transmitted dW
Cryst Safety Glass <b>Laminated Glass</b>	Clear	0.38	73	89	0.91	0.78	6.07	6.40	0.01	0.32
	Clear	0.76	72	88	0.90	0.77	6.02	6.30	0.01	0.30
	Clear	1.14	69	88	0.88	0.75	5.90	6.17	0.01	0.28
	Clear	1.52	70	88	0.88	0.76	5.90	6.17	0.01	0.28
	Clear	2.29	67	88	0.86	0.74	5.79	6.01	0.01	0.26
	Blue Gray	0.38	37	30	0.62	0.53	6.07	4.52	0.01	0.11
Cryst Safety Glass <b>Tinted Laminated</b>	Translucent White	0.38	52	57	0.73	0.62	6.07	5.20	0.01	0.19
	Neutral Medium Brown	0.38	32	29	0.58	0.50	6.07	4.26	0.01	0.07
	Neutral Light Brown	0.38	52	56	0.73	0.63	6.07	5.26	0.01	0.17
	Blue Green	0.76	62	71	0.82	0.70	6.02	5.78	0.01	0.23
	Medium Bronze	0.38	34	28	0.59	0.51	6.07	4.35	0.01	0.08
	Light Bronze	0.76	49	52	0.71	0.61	6.02	5.10	0.01	0.15
	Gray	0.76	47	43	0.69	0.60	6.02	5.00	0.01	0.15
	Vanceva Red	0.38	62	50	0.82	0.70	6.07	5.78	0.01	0.22
	Vanceva Light Red	0.38	70	76	0.88	0.76	6.07	6.21	0.01	0.30
	Vanceva Yellow	0.38	63	79	0.82	0.71	6.07	5.82	0.01	0.02
	Vanceva Light Yellow	0.38	68	85	0.87	0.75	6.07	6.11	0.01	0.14
	Vanceva Blue	0.38	55	50	0.76	0.65	6.07	5.43	0.01	0.26
	Vanceva Light Blue	0.38	68	77	0.87	0.75	6.07	6.11	0.01	0.31
	Vanceva Black	0.38	48	50	0.70	0.60	6.07	5.04	0.01	0.15
Vanceva Light Black	0.38	66	78	0.86	0.74	6.07	6.04	0.01	0.27	

The data and information set forth above are based on samples tested and are not guaranteed for all samples or applications.  
 All data calculated using Lawrence Berkeley Laboratory Window 4.1 Program:  
 Laminates constructed with 3mm Clear Glass - PVB Interlayer - 3mm Clear Glass