

## PRODUCT DESCRIPTION

Clear glass by Vitro Architectural Glass is a soda-lime float glass product with a slightly green inherent color that deepens as thickness increases. Its relatively high visible light transmittance (89% at 6mm) and its greenish edge are two characteristics. Clear glass mechanical and physical properties are similar to other soda-lime float glass products.

## APPROXIMATE WEIGHTS

Per m <sup>2</sup>		Per ft <sup>2</sup>	
thickness	weight	thickness	weight
2.5 mm	6.9	3/32	1.3 lbs
3.0 mm	8.2 kg	1/8	1.5 lbs
4.0 mm	9.9 kg	5/32	2.0 lbs
5.0 mm	11.9 kg	3/16	2.4 lbs
6.0 mm	14.2 kg	1/4	2.9 lbs
8.0 mm	19.8 kg	5/16	4.0 lbs
10.0 mm	23.8 kg	3/8	4.9 lbs
12.0 mm	31.8 kg	1/2	6.4 lbs
16.0 mm	41.0 kg	5/8	8.0 lbs
19.0 mm	50.9 kg	3/4	10.0 lbs

## COLOR

	6.0mm
Transmitted Color: D65, 10° L*	95.4
a*	-1.8
b*	0.1
Hue Angle (°)	176
Dominant wavelength: C, 2°	496 nm

## CHEMICAL COMPOSITION

SiO <sub>2</sub>	73%
Na <sub>2</sub> O	14%
CaO	9%
MgO and Trace elements	4%

## MECHANICAL PROPERTIES

Knoop Hardness Number (indentation hardness) indenter load--500 gm	470 kgf/mm <sup>2</sup>	
Poisson's Ratio	0.22	
Modulus of Elasticity (Young's)	73.1 GPa	10,600,000 psi
Tensile Strength (Determined as Modulus of Rupture, ultimate)	41.4 MPa	6,000 psi
Density at 21°C (70°F)	2.51 g/cm <sup>3</sup>	157 lb/ft <sup>3</sup>

## THERMAL PROPERTIES

Hemispherical Emissivity at -18 to 66 °C (0 to 150°F) glass	0.84	
Expansion Coefficient (linear) 20 to 300°C (68 to 572°F)	8.6*10 <sup>-6</sup> / °C	4.8*10 <sup>-6</sup> / °F
Specific heat at 0 to 100°C (32 to 212°F)	858 J/kg-K	0.205 Btu/lb-°F
Thermal Conductivity (k) at 50°C (122°F)	0.937 W/m-K	0.542 Btu/hr-ft-°F
Softening Point	723°C	1333°F
Annealing Point	544°C	1011°F
Strain Point	504°C	939°F

## SUSTAINABILITY

To provide architects with the assurance and documentation they need to meet and verify their sustainability goals, Vitro Architectural Glass participates in a range of programs and initiatives. Resources available include, but are not limited to:

Type III Environmental Product Declarations

Cradle to Cradle Certified™ Bronze with associated Gold Material Health Certificate

LEED® and Living Building Challenge documentation

Material Ingredient Disclosure and Safety Data Sheets

Annual Corporate Sustainability Report

Further information is available through VitroGlazings.com or by calling 855-887-6457 (VTRO GLS)



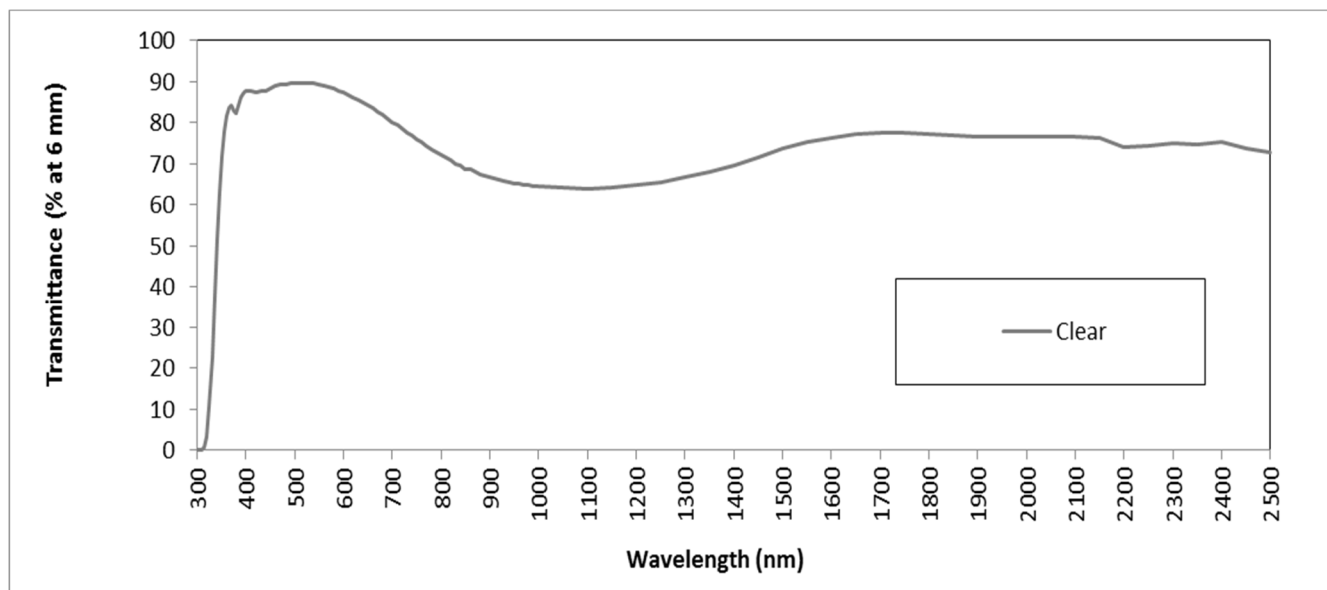
## SOLAR PERFORMANCE VALUES [1]

Glass Thickness		Transmittance				Reflectance	
inches	mm	Ultra-violet (%)	Visible (%)	Infrared (%)	Total Solar (%)	Visible (%)	Total Solar (%)
1/8	3.0	73	90	78	83	9	8
5/32	4.0	71	90	75	81	9	7
3/16	5.0	69	89	72	79	9	7
1/4	6.0	66	89	69	77	8	8
5/16	8.0	61	88	62	72	8	7
3/8	10.0	58	87	56	69	8	7
1/2	12.0	53	85	48	64	8	6
5/8	16.0	48	84	41	59	8	6
3/4	19.0	46	83	36	55	8	6

[1] Figures may vary due to manufacturing tolerances. All tabulated solar performance data are based on the methodology prescribed in ISO 9050, 2003 except Infrared, which is based on the solar irradiance data prescribed by ISO 9050, 2003 from 780 to 2500 nm. Slight changes in transmitted optical properties may occur on exposure to sunlight.

Transmittance (% at 6 mm/0.223")

Wavelength (nm)	Clear Glass %T	Wavelength (nm)	Clear Glass %T	Wavelength (nm)	Clear Glass %T	Wavelength (nm)	Clear Glass %T	Wavelength (nm)	Clear Glass %T
300	0.0	430	87.7	660	83.5	890	67.1	1600	76.5
305	0.0	440	87.8	670	82.8	900	66.8	1650	77.2
310	0.1	450	88.3	680	81.9	910	66.4	1700	77.5
315	0.7	460	89.0	690	81.2	920	66.1	1750	77.5
320	3.5	470	89.3	700	80.2	930	65.8	1800	77.2
325	10.7	480	89.4	710	79.4	940	65.6	1850	76.9
330	22.8	490	89.6	720	78.6	950	65.4	1900	76.7
335	37.5	500	89.7	730	77.7	960	65.1	1950	76.7
340	51.5	510	89.8	740	77.0	970	65.0	2000	76.6
345	63.2	520	89.8	750	76.2	980	64.8	2050	76.7
350	71.8	530	89.7	760	75.2	990	64.6	2100	76.8
355	77.8	540	89.5	770	74.4	1000	64.5	2150	76.4
360	81.7	550	89.3	780	73.6	1050	64.1	2200	74.0
365	83.8	560	89.0	790	72.9	1100	64.1	2250	74.3
370	84.4	570	88.7	800	72.2	1150	64.3	2300	75.2
375	83.0	580	88.3	810	71.5	1200	64.8	2350	74.9
380	82.4	590	87.9	820	70.9	1250	65.6	2400	75.2
385	84.2	600	87.3	830	70.1	1300	66.8	2450	73.8
390	86.2	610	86.8	840	69.7	1350	68.2	2500	72.7
395	87.2	620	86.2	850	68.8	1400	69.7		
400	87.7	630	85.5	860	68.6	1450	71.7		
410	87.7	640	84.9	870	68.0	1500	73.7		
420	87.6	650	84.2	880	67.5	1550	75.3		



**ADDITIONAL INFORMATION/DOCUMENTS**

The following documents can be referenced for additional information regarding Clear glass;

Clear Performance Data, Vitro Float Glass Warranty, Vitro Float Glass SDS, C2C Material Health Certificate, Vitro Float Glass EPD