

# BOROSILICATE 3.3 FLOAT GLASS CERTIFICATE OF ANALYSIS

Inclusions	Physical Properties		
	Air bubbles & bubble Length(L)	L & Quantity permitted (S=square meters)	
0.3mm≤L≤0.5mm		0.5mm≤L≤0.75mm	L>0.75mm
10×S		5×S	0
Solid inclusions& length (L)	L & Quantity permitted (S=square meters)		
	0.3mm≤L≤0.5mm	L>0.5mm	
	2×S	0	
Point defect intensity	Defect spacing >100mm		
Scratches	L&W & Quantity permitted: L 20mm;Width, 0.1mm; Quantity 2×S		

## Mechanical Properties

Density (25°C) ρ	2.23±0.02g/cm <sup>3</sup>
Modulus of elasticity	68kN/mm <sup>2</sup>

## Thermal properties

Co-efficient of expansion(20-300°C)	$3.3 \pm 0.1 \times 10^{-6}$
Softening point	820±10°C
Strain point	516±10°C
Heat conductivity at 90°C	1.2W/mk
Caloricity	(20-100°C) 0.82KJ × (kg×K) <sup>-1</sup>
Thermal shock resistance	180K
Strengthening type	> 300K
Identical temperature difference	100K
Strengthening type	> 300 K
Maximum working temperature	
Short time (<10h):	500°C
Long time (>10h):	450°C

## Chemical Properties

Water resistance	ISO719/DIN12111 HGB1 ISO720 HGA1
Acid resistance	ISO1776/DIN12116      1
Alkali resistance	ISO695/DIN52322 A2

## Optical Properties

Refractive	n <sub>d</sub> : 1.47384							
Light transmission	Thickness (mm)	2	3	4	5	6	7	8
	Value	92%			91%			

## Electrical Properties

Specific resistance lgp	8.0Ω×cm at 250°C
tan σ (1 兆周 20°C)	38×10 <sup>-4</sup>
Dielectric dissipation fraction	
Dielectric constant	ε=4.7

Borosilicate 3.3 serves as a material of truly functional and wide applications:

- 1). Household electrical appliance (panel for oven and fireplace, microwave tray etc.);
- 2). Environmental engineering and chemical engineering (Lining layer of repellence, autoclave of chemical reaction and safety spectacles);
- 3). Lighting (spotlight and protective glass for jumbo power of floodlight);
- 4). Power regeneration by solar energy (solar cell base plate);
- 5). Fine instruments (optical filter);
- 6). Semi-conductor technology (LCD disc, display glass);
- 7). Iatrology and bio-engineering;
- 8). Safety protection (bullet proof glass)

#### List of Thickness and Tolerance

Thickness mm	Tolerance mm	Thickness mm	Tolerance mm
1.50	±0.20	4.00	±0.15
2.00	±0.20	5.00	±0.15
2.25	±0.20	5.50	±0.15
2.75	±0.20	6.00	±0.15
3.00	±0.20	6.50	±0.20
3.30	±0.20	7.50	±0.30
3.80	±0.15	8.00	±0.30
9.00	±0.30	10.00	±0.30
11.00	±0.30	12.00	±0.30
13.00	±0.30	15.00	±0.30

#### IV.Means of Processing for Customers

Cutting

Round corner

Round edge

Surface fine polishing

Hole drilling

Coating

Surface printing and sand blasting

Thermal bending

Thickness (mm)	Glass sheet Size (mm)	Quantity (pc/crate)	Crate size L*W*H(mm)	Net weight (kg/crate)
1.2	1150*850	200	1340*380*1085	523
1.5		165		540
2	1150*850	255	1340*665*1085	1112
3		180		1177
3.3		165		1187
3.8		142		1176
4		138		1203
5		112		1221
6		94		1229
8		72		1256
10		58		1264
12		48		1256
15		28		1243

Notes:

1. The capability is to produce thickness from 1.2mm to 20mm; other thicknesses will be produced and fulfilled within next half of this year 2010.
2. Special sizes will be welcome and made according to your requirements

A large, rectangular wooden crate is shown, secured with four vertical black straps. The crate is resting on four wooden dunnage blocks. A white label is affixed to the front face of the crate, containing text in both Chinese and English. The background is dark, suggesting an indoor storage or shipping area.

玻璃易碎，小心轻放！  
Fragile! Pls handle care