Product
Information

SCHOTT

BOROFLOAT® Borosilicate Float Glass

Schott offers a highly chemically resistant borosilicate glass with a low thermal expansion that is being manufactured by the float method. BOROFLOAT® is a technologically significant development, achieving unsurpassed quality for flat borosilicate glass. It replaces TEMPAX®, a drawn flat borosilicate glass. The high quality resulting from the float glass process opens up new applications for borosilicate flat glass, which has proven itself over time in laboratories, chemical process plants and in the home appliance and lighting industries.

BOROFLOAT® flat glass is highly resistant to water; neutral, acidic and saline solutions, as well as to chlorine, bromine, iodine and organic substances. Even over long periods of time and at high temperatures that exceed 100°C, BOROFLOAT® exceeds the chemical resistance of most metals and other materials.

Chemical Data

• Hydrolytic Resistance	(ISO-719-HGB)	1
• Hydrolytic Resistance	(ISO 720-HGA)	1
• Acid Resistance	(ISO 1776)	1
• Alkali Resistance	(ISO 695-A)	2

Mechanical Properties

• Density (@ 25°C/77°F)	2.23 g/cm^3
• Modulus of Elasticity	63 kN/mm^2
• Knoop Hardness HK 0.1/20 (according to E DIN/ISO 9385)	480
• Poisson's Ratio	0.2

Electrical Properties

• Dielectric Constant (@ 1 MHz & 25°C)	4.6
• Loss Tangent (@ 1 MHz & 25°C)	37 x 10^{-4}
• Dielectric Strength(@ 50 Hz & 25°C)	16 kV/mm
• Electric Volume Resistivity (log Ꞁ)	
@ 250°C	8.0
@ 350°C	6.5

Physical Impact

The resistance of BOROFLOAT® to physical impact depends on the type of installation, the size and thickness of the glass panel, the type of physical impact, in addition to other parameters.

Optical Properties

• Refractive Index (n_d)	1.472
• Dispersion ($n_F - n_C$)	71.9 x 10^{-4}

Thermal Properties

• Linear Thermal Coefficient of Expansion Ꞁ (20-300°C/ 68-572°F)	3.25 x 10^{-6}/°K
• Transformation Temperature T_g	530°C/986°F
• Annealing Point (10^{13} dPa•s)	560°C/1040°F
• Softening Point (10$^{7.6}$ dPa•s)	815°C/1508°F
• Thermal Conductivity Ꞁ	
@ 90°C	1.12 W/(m•°K)
@ 194°F	0.65 Btu•ft/h•ft^2•°F
• Mean Specific Thermal Capacity c_p	
20-100°C	0.83 kJ/(kg•°K)
68-212°F	0.19 Btu/lb•°F
• Maximum Operating Temperature (Considering RTD[1])	
Short term	500°C/932°F
Long term	450°C/842°F
• Resistance to Temperature Differences (RTD[1])	
Short term exposure	
(1 hour)	110°K/198°R
(1-100 hours)	90°K/162°R
Long term exposure	
(>100 hours)	80°K/144°R
• Resistance to Thermal Shock (RTS[2])	
Thickness <4 mm	175°K/315°R
Thickness 4-6 mm	160°K/288°R
Thickness 6-15 mm	150°K/270°R
Thickness >15 mm	140°K/252°R

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Supersedes All Previous Releases

Sheet Sizes and Tolerances

Stock sizes (standard) ±0.2 mm

1150 x 850 mm	(43.3 x 33.5 in.)	[0.7 - 21 mm]
1700 x 1300 mm	(66.9 x 51.2 in.)	[16 - 21 mm]
2300 x 1700 mm	(90.5 x 66.9 in.)	[3.3 - 15 mm]

Standard Thickness

Nominal Thickness (mm)	Tolerance (mm)
0.7	±0.1
1.1	±0.1
1.75	±0.2
2.0	±0.2
2.25	±0.2
2.75	±0.2
3.3	±0.2
3.8	±0.2
5.0	±0.2
5.5	±0.2
6.5	±0.2
7.5	±0.3
9.0	±0.3
11.0	±0.3
13.0	±0.3
15.0	±0.3
16.0	±0.5
19.0	±0.5
21.0	±0.5

[1]RTD = Resistance to Temperature Differences
Panels measuring 25 x 25 cm^2 (10 x 10 inches) are heated in the center of the panel to a defined temperature, and the edges are maintained at room temperature. An RTD value is the difference in temperature between the hot center of the panel and the cool panel edge, at which breakage occurs to less than or equal to 5% of the samples.

Before the testing, the samples are abraded with sandpaper of grain size 40. This simulates extreme damage which is possible in usage.

[2]RTS - Resistance to Thermal Shock
Panels measuring 20 x 20 cm^2 (8 x 8 inches) are heated in an oven with circulating air and afterwards are doused in the center with 50 ml of cold (room temperature) water.

The RTS value is the difference in temperature between the hot panel and the cold (room temperature) water, at which breakage occurs to less than or equal to 5% of the samples.

Before being heated, the samples are abraded with emery paper of grain size 220. This simulates a typical state of the surface in practical use.

All data are intended to be used as guidelines, unless otherwise stated. Please contact Schott should you have additional technical questions.