Spectraglass
SPECIALIST GLASS SOLUTIONS

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## BOROFLOAT

This is a highly chemical resistant borosilicate glass with a low thermal expansion that is manufactured using the float process

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

It 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

## TYPICAL PROPERTIES

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|---|---|
| Density @25°C | 2.22 g/cm3 |
| Young's Modulus (E) @25°C | 63 GPa |
| Knoop Hardness ISO 9385 | 480 |
| Poisson's Ratio (μ) | 0.20 |
| Bending Strength DIN 52292 | 25 N/mm2 |
| Thermal Expansion (20 - 300°C) | 3.25 x 10-6/K |
| Thermal Conductivity 10°C<br>50°C<br>90°C<br>190°C | 1.11 W/m K<br>1.17 W/m K<br>1.22 W/m K<br>1.31 W/m K |
| Heat Capacity (Cp) 20 - 100°C | 0.83 kJ/kg K |
| Maximum Operating Temperature - Short-term<br>- Long-term | 500°C<br>450°C |
| Resistance to Thermal Gradients < 1 hour<br>1 - 100 hours<br>> 100 hours | 110K<br>90K<br>80K |
| Resistance to Thermal Shock < 4 mm<br>4-6 mm<br>6-15 mm<br>> 15 mm | 175K<br>160K<br>150K<br>140K |
| Mechanical Properties: | |
| Hardness, Knoop | 480 |
| Modulus of Elasticity | 63.0 GPa |
| Poissons Ratio | 0.20 |
| Shear Modulus | 26.3 GPa |
| Volume Resistivity | 3.10e+6 ohm-cm @ 350 °C<br>00e+8 ohm-cm @ 250 °C |
| Dielectric Constant | 4.60 @Frequency 1e+6 Hz |
| Dielectric Strength | 16.0 kV/mm 50 Hz |
| Dissipation Factor | 0.00370 @Frequency 1e+6 Hz |

| | |
|---|---|
| CTE linear<br>@Temperature 20.0 - 300 °C | 3.25 µm/m -°C<br>1.81 µin/in |
| Specific Heat Capacity | 0.830 J/g-°C @Temperature 20.0 - 100 °C |
| Thermal Conductivity | 1.12 W/m-K @Temperature 90.0 °C |
| Maximum Service Temperature (Air) | 450 °C Long Term (depends on temperature gradient)<br>500 °C Short Term depends on temperature gradient) |
| Transformation Temperature | Tg 530 °C |
| Softening Point | 815 °C 10^7.6 dPa-s |
| Annealing Point | 560 °C 10^13 dPa-s |
| Refractive Index 1.463<br>1.472nd<br>1.481<br>1.489 | 1014 nm (IR Hg)<br>588 nm<br>435.8 nm (Blue Hg)<br>365 nm (UV Hg) |
| Transmission | Visible92.0 % @Thickness 0.700 mm |
| Abbe Value | 65.41 ve |
| Dispersion | 0.00719 nF - nC |