

CORNING

EAGLE XG® Slim Glass



Product Information Sheet

Glass Type:

Alkaline earth boro-aluminosilicate

Forms Available:

Fusion-drawn sheet

Principle Uses:

Substrates for active-matrix flat panel displays

Properties

Where applicable, units are stated in Metric and English

Mechanical

| | Metric | English |
|--|-----------|----------------------------|
| Density (20°C, 68°F) | 2.38 g/cc | 148.5 lb/ft ³ |
| Young's Modulus | 73.6 GPa | 10.7 x 10 ⁶ psi |
| Shear Modulus | 30.1 GPa | 4.4 x 10 ⁶ psi |
| Poisson's Ratio | | 0.23 |
| Vicker's Hardness (200 gm load, 25 sec dwell) | | 640 |

Thermal Expansion

| | | |
|------------------|---|--|
| 0 - 300°C | 31.7 x 10 ⁻⁷ / °C (0 - 300°C) | 17.7 x 10 ⁻⁷ / °F (32 - 572°F) |
| Room Temperature | 35.5 x 10 ⁻⁷ / °C | 19.7 x 10 ⁻⁷ / °F |
| To Setting Point | (25 - 675°C) | (77 - 1247°F) |

Thermal Conductivity

Thermal conductivity is a calculated value, and is equal to the product of the thermal diffusivity multiplied by specific heat multiplied by the density of the glass.

| Temp (°C) | Specific Heat (J/gm-°K) | Thermal Diffusivity (cm ² /sec) | Thermal Conductivity (W/cm-°K) |
|-----------|----------------------------|---|-----------------------------------|
| 23 | 0.768 | 0.00601 | 0.0109 |
| 100 | 0.896 | 0.00572 | 0.0122 |
| 200 | 0.998 | 0.00546 | 0.0129 |
| 300 | 1.067 | 0.00530 | 0.0134 |
| 400 | 1.110 | 0.00522 | 0.0137 |
| 500 | 1.154 | 0.00518 | 0.0142 |

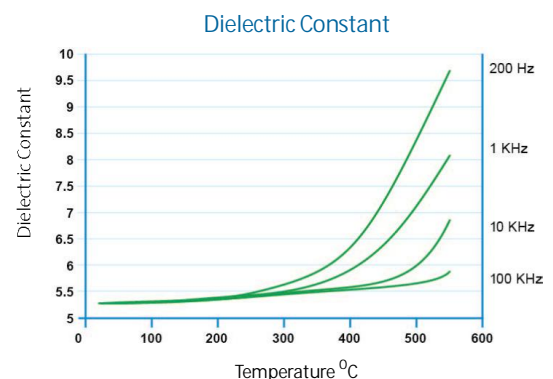
Viscosity

| | |
|--|------|
| Working Point (10 ⁴ poises) | 1293 |
| Softening Point (10 ^{7.6} poises) | 971 |
| Annealing Point (10 ¹³ poises) | 722 |
| Strain Point (10 ^{14.5} poises) | 669 |

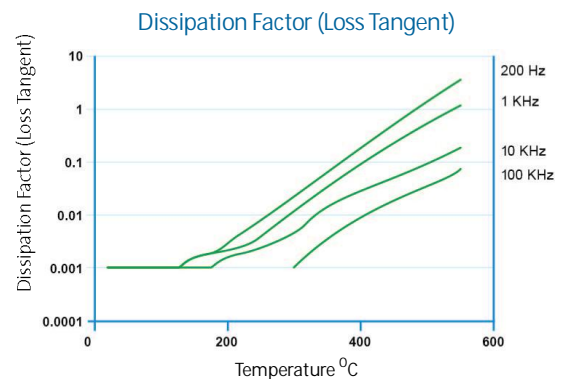
Electrical

Log₁₀ Volume Resistivity (ohm-cm)

| | |
|------|----------------|
| 12.9 | (250°C, 482°F) |
| 8.8 | (500°C, 932°F) |



Dielectric Constant: 5.27
(20°C/68°F - 1 kHz)



Loss Tangent: 0.30%
(20°C/68°F - 1 kHz)

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Chemical

Weathering: 1

Weathering is defined as corrosion by atmospheric-borne gases and vapor such as water and carbon dioxide. Glasses rated 1 will almost never show weathering effects; those rated 2 will occasionally be troublesome, particularly if weathering products cannot be removed; those rated 3 require more careful consideration.

Durability:

Durability is measured via weight loss per surface area after immersion. Values are highly dependent upon actual testing conditions. Unless otherwise noted, concentrations refer to weight percent.

| Reagent | Time | Temperature | Weight Loss (mg/cm ²) |
|---|--------|-------------|-----------------------------------|
| HCl – 5% | 24 hrs | 95°C | 0.79 |
| HNO ₃ – 1M | 24 hrs | 95°C | 0.49 |
| HF – 10% | 20 min | 20°C | 5.18 |
| NH ₄ F: HF – 10% | 20 min | 20°C | 0.84 |
| 1HF: 10HNO ₃ | 3 min | 20°C | 1.48 |
| 1HF: 100HNO ₃ | 3 min | 20°C | 0.16 |
| DI H ₂ O | 24 hrs | 95°C | 0.00 |
| Na ₂ CO ₃ – 0.02N | 6 hrs | 95°C | 0.16 |
| NaOH – 5% | 6 hrs | 95°C | 1.83 |

Total alkali content is approximately: 0.1 wt%
(Typical < 0.05 wt%)

Optical Wavelength Refractive Index

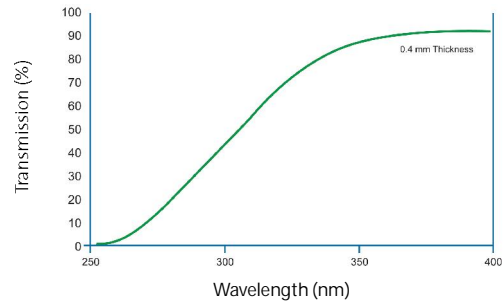
| | |
|----------|--------|
| 435.8 nm | 1.5198 |
| 467.8 nm | 1.5169 |
| 480 nm | 1.5160 |
| 508.6 nm | 1.5141 |
| 546.1 nm | 1.5119 |
| 589.3 nm | 1.5099 |
| 643.8 nm | 1.5078 |

Birefringence Constant

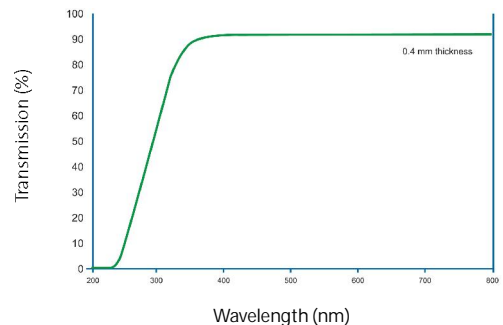
331 (nm/cm) / (kg/mm²)

Transmittance

UV Transmission



Optical Transmission



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