



EAGLE XG® Slim Glass Substrates

As emerging mobile applications drive increased demand for thinner, lighter display panels, Corning's EAGLE XG® Slim glass substrates help panel manufacturers meet this demand in a more cost-efficient and environmentally conscious way, by making the glass free of heavy metals.

Now available in 0.3 mm thickness up to Generation 6 (1500mm by 1800mm, or roughly five feet by six feet), EAGLE XG Slim glass provides a significant cost reduction benefit to LCD display panel manufacturers.

Currently, many flat-panel display manufacturers must thin the LCD glass plate through an expensive acid etching step as part of their production process. EAGLE XG Slim glass is naturally thin so it requires no acid etching to meet the 0.3mm target thickness and hence eliminates thinning costs completely.

EAGLE XG Slim glass is currently used in mobile phones, tablets, notebooks, monitors, and televisions. The availability of 0.3 mm substrates in Generation 6 size provides an ideal solution for emerging mobile applications, like those in the Ultrabook™ product category. Ultrabooks, a trademark of Intel Corporation, are notebooks that allow users to consume and produce content without sacrificing mobility.

EAGLE XG Slim glass is produced using the award-winning EAGLE XG glass composition and Corning's proprietary fusion process. This precise process produces glass substrates with inherent dimensional stability and exceptionally clean, smooth, flat surfaces – qualities essential to the successful manufacture of LCD displays.

STEMMERICH, INC.
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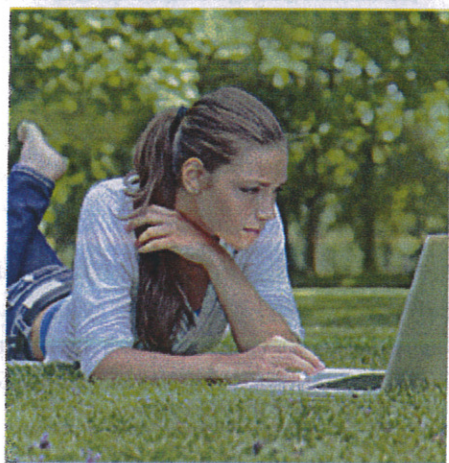
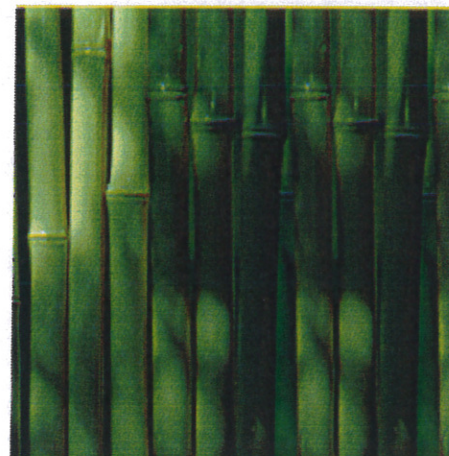
Glass Type – Alkaline earth boro-aluminosilicate
 Forms Available – Fusion-drawn sheet
 Principal Uses – Substrates for active-matrix flat panel displays

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	
Vickers 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

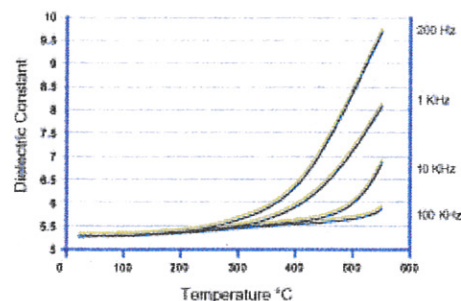
Electrical

Log₁₀ Volume Resistivity (ohm-cm)

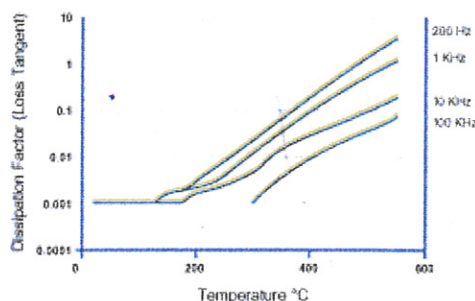
12.9 (250°C, 482°F)

8.8 (500°C, 932°F)

Dielectric Constant



Dissipation Factor (Loss Tangent)



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	Temp	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

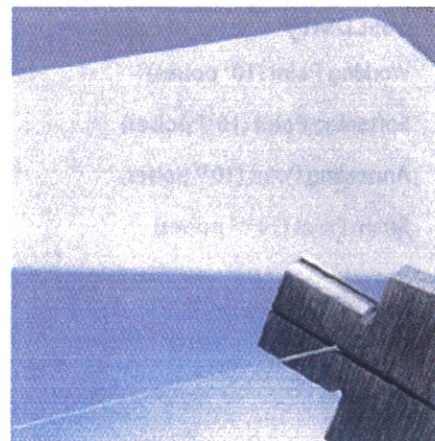
Total alkali content is approximately: 0.1 wt%
(Typical < 0.05 wt%)

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

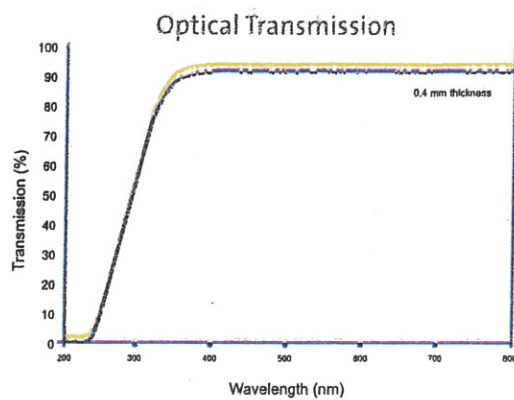
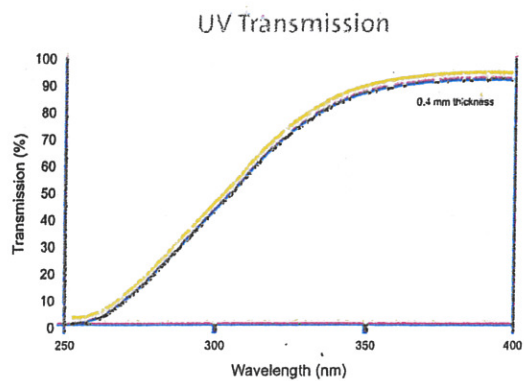
Birefringence Constant

331 (nm/cm)/(kg/mm²)

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Transmittance



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