

Corning® 1737

AMLCD Glass Substrates

Material Information



CORNING
Discovering Beyond Imagination

Display
Technologies

MIE 101

Issued: November 2004

Supersedes: December 2003

Glass Type – Alkaline Earth Boro-Aluminosilicate

Forms Available – Fusion drawn sheet

Principal Uses – Substrates for Active Matrix flat panel displays

Corning 1737 is available in both, standard and arsenic-free substrates. The properties are essentially the same.

Properties

Where applicable, units are stated in Metric and English

Mechanical

	Metric	English
Density (20°C, 68°F)	2.54 g/cm ³	158.6 lb/ft ³
Young's Modulus	70.9 GPa	10.3 Mpsi
Poisson's Ratio	0.23	0.23
Shear Modulus	28.9 GPa	4.2 Mpsi

Vickers Hardness 633
(200 gm load, 25 sec dwell)

Thermal Expansion

0 - 300°C	37.6 x 10 ⁻⁷ /°C (0 - 300°C)	21.0 x 10 ⁻⁷ /°F (32 - 572°F)
Room Temperature	42.0 x 10 ⁻⁷ /°C	23.3 x 10 ⁻⁷ /°F
To Setting Point	(25 - 671°C)	(77 - 1240°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 Density of the glass.

Temp (°C)	Specific Heat (cal/gm-°K)	Thermal Diffusivity (cm ² /sec)	Thermal Conductivity (cal-cm/cm ² -sec-°K)
23	0.169	0.00504	0.00217
50	0.176	0.00506	0.00227
100	0.190	0.00511	0.00247
200	0.213	0.00503	0.00272
300	0.232	0.00496	0.00292
400	0.250	0.00491	0.00311
500	0.263	0.00490	0.00327
600	0.276	0.00496	0.00346

Viscosity

Working Point (10 ⁴ poises)	1312°C	2394°F
Softening Point (10 ^{7.6} poises)	975°C	1787°F
Annealing Point (10 ¹³ poises)	721°C	1330°F
Strain Point (10 ^{14.5} poises)	666°C	1231°F

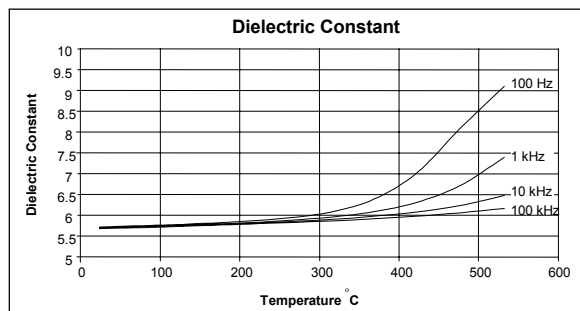
Electrical

Log₁₀ Volume Resistivity (ohm – cm)

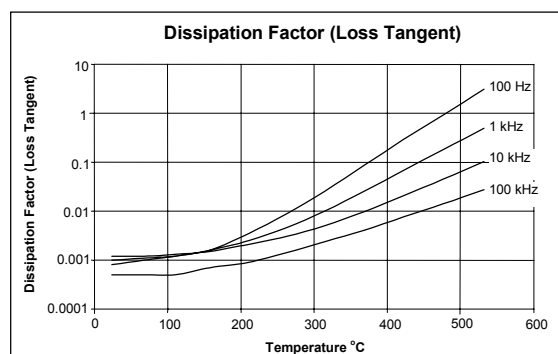
13.5 (250°C, 482°F)

11.4 (350°C, 662°F)

9.3 (500°C, 932°F)



Dielectric Constant: 5.7
(20°C/68°F – 1 kHz)



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	0.46
H ₂ SO ₄ – 1M	24 hrs	95°C	0.60
HNO ₃ – 1M	24 hrs	95°C	0.24
HF – 10%	20 min	22°C	6.34
NH ₄ F:HF – 10%	22 min	22°C	1.17
110 BHF	5 min	30°C	0.23
63 BHF	5 min	30°C	0.11
1HF:10HNO ₃	3 min	25°C	2.01
1HF:100HNO ₃	3 min	25°C	0.46
H ₂ O	24 hrs	95°C	0.007
Na ₂ CO ₃ – 0.02N	6 hrs	95°C	0.17
NaOH – 5%	6 hrs	95°C	1.76

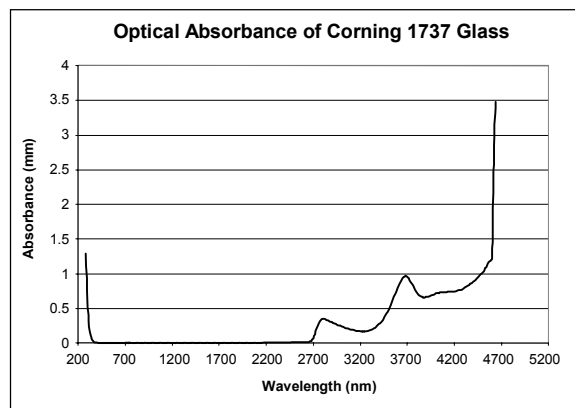
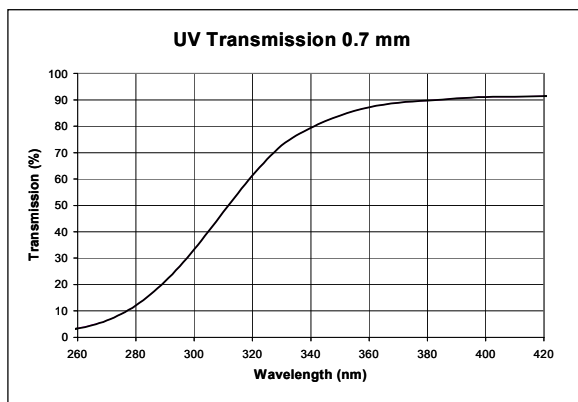
Total alkali content is approximately: 0.1 wt%
(Typical < 0.05 wt%)

Optical Wavelength	Refractive Index
435.8 nm	1.5287
480 nm	1.5247
486.1 nm	1.5244
546.1 nm	1.5203
589.3 nm	1.5183
643.8 nm	1.5161
656.3 nm	1.5160
1300 nm	1.5051
1541 nm	1.5023

Birefringence Constant

333 (nm/cm)/(kg/mm²)

Transmittance



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