

CORNING Gorilla® Glass

Corning® Gorilla® Glass 2 is an environmentally friendly alkali-aluminosilicate thin sheet glass that is better able to survive the real-world events that most commonly cause glass failure. Its superior composition allows a deeper layer of chemical strengthening than is possible with most other chemically strengthened glasses — making it both durable and damage resistant.

Product Information

Benefits

- Glass designed for a high degree of chemical strengthening
 - High compressive stress
 - Deep compression layer
- High retained strength after use
- High resistance to scratch damage
- Superior surface quality

Applications

- Ideal protective cover for displays in
 - Smartphones
 - Laptop and tablet computer screens
 - Mobile devices
- Touchscreen devices
- Optical components
- High strength glass articles

Dimensions

Available Thicknesses 0.5 mm – 2.0 mm

Viscosity

Softening Point ($10^{7.6}$ poises)	895 °C
Annealing Point ($10^{13.2}$ poises)	653 °C
Strain Point ($10^{14.7}$ poises)	599 °C

Properties

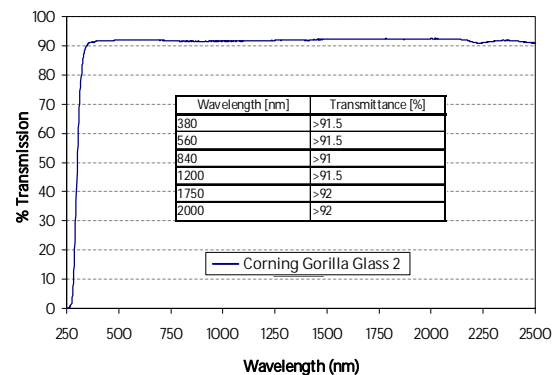
Density	2.42 g/cm ³
Young's Modulus	71.5 GPa
Poisson's Ratio	0.21
Shear Modulus	29.6 GPa
Vickers Hardness (200g load)	
Unstrengthened	534 kgf/mm ²
Strengthened	649 kgf/mm ²
Fracture Toughness	0.68 MPa m ^{0.5}
Coefficient of Expansion (0-300°C)	81.4 x 10 ⁻⁷ /°C

Chemical Strengthening

Compressive Stress Capability	≥ 1000 MPa @ 40 μm DOL
	≥ 950 MPa @ 50 μm DOL
Depth of Layer Capability	≥ 50 μm

Optical

Refractive Index (590 nm)	
Core Glass	1.50
Compression Layer	1.51
Photo-elastic constant	29.7 nm/cm/MPa



Chemical Durability

Durability is measured via weight loss per surface area after immersion in the solvents shown below. Values are highly dependent upon actual testing conditions. Data is reported for Gorilla Glass 2.

Reagent	Time	Temperature (°C)	Weight Loss (mg/cm ²)
HCl – 5%	24 hrs.	95	0.12
NH4:HF – 10%	20 min.	20	2.64
HF – 10%	20 min.	20	11.88
NaOH-5%	6 hrs.	95	1.42

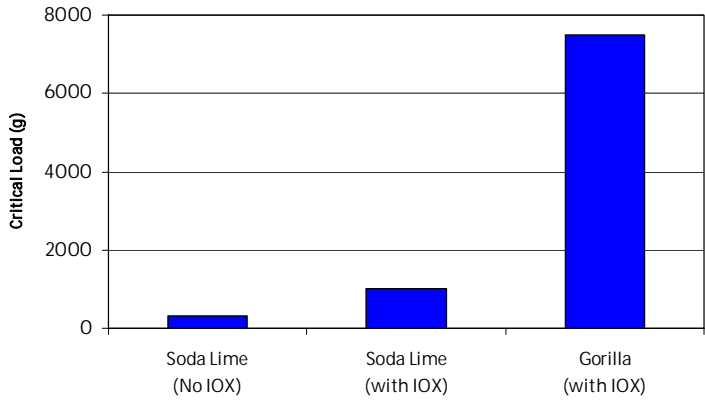
Electrical

Frequency (MHz)	Dielectric Constant	Loss Tangent
50	7.24	< 0.03
175	7.18	< 0.03
275	7.21	< 0.03
375	7.23	< 0.03
500	7.21	< 0.03
600	7.23	< 0.03
900	7.24	< 0.03
1499	7.52	< 0.03
1977	7.46	< 0.03
2466	7.43	< 0.03
2986	7.39	< 0.03

Terminated coaxial line similar to that outlined in NIST Technical Note 1520 and NIST Technical Note 1355-R.

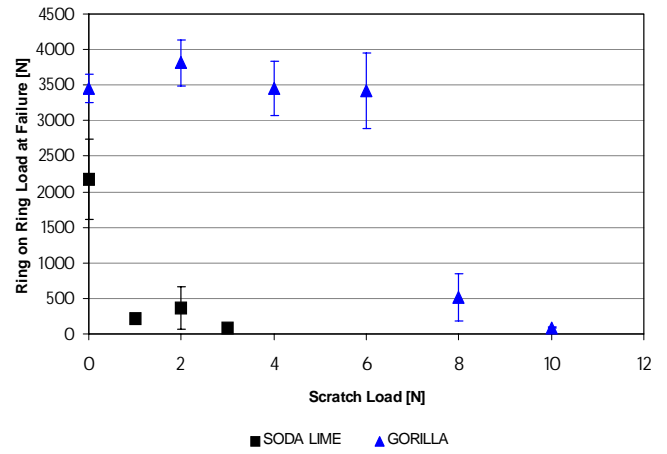
Putting Corning® Gorilla® Glass 2 to the test.

Greater damage resistance.



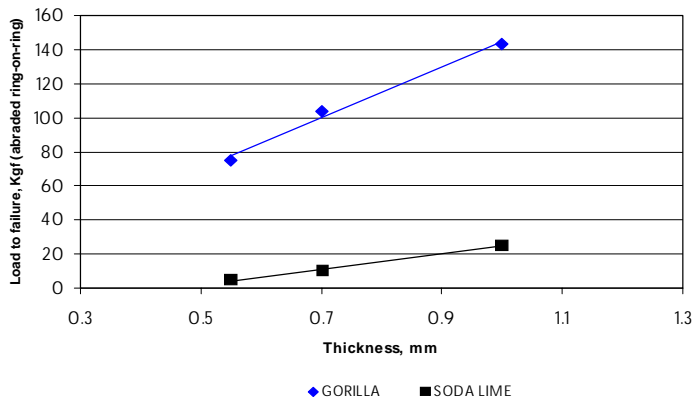
It takes more load to initiate radial cracks in the glass.

Greater retained strength



There is less strength degradation after scratching.

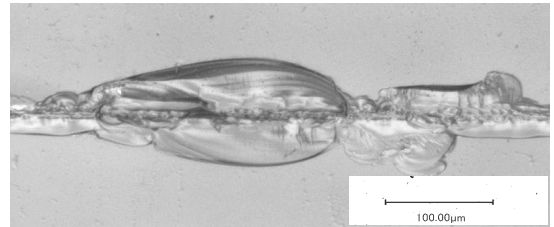
Enables use of thinner glass.



Devices benefit from a greater retained strength.

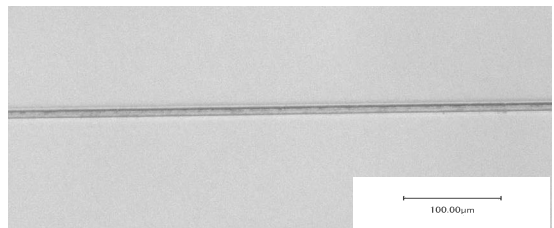
Scratches are less visible

Knoop Visual Scratch Test



Ion-Exchanged Soda Lime Silicate

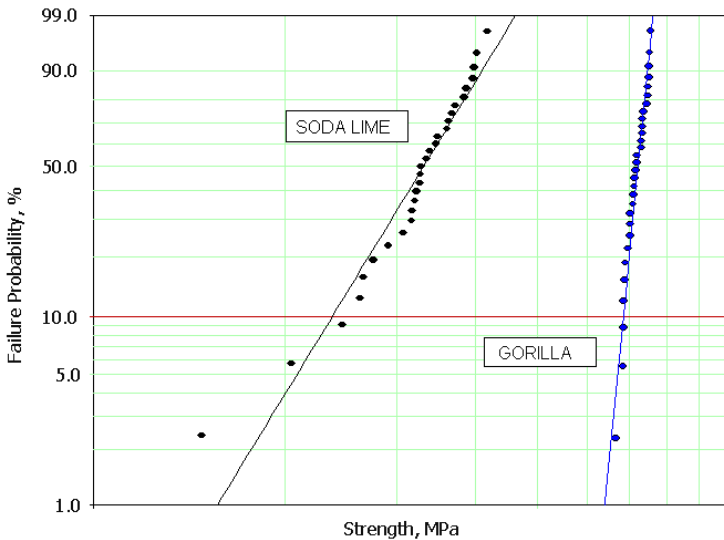
10 mm scratches made with 1 N force at a constant rate of 0.4 mm/s in 45% RH. Lateral cracks have developed and are visible



Ion-Exchanged Corning Gorilla Glass 2

10 mm scratches made with 1 N force at a constant rate of 0.4 mm/s in 45% RH. No lateral cracks have developed.

Enables greater strength.



Corning Gorilla Glass 2 exhibits tighter strength distribution.

CORNING

For more information:
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