

Appearance

Compliant (viscous) sealing glass that is gray colored in powder form.

Chemical Composition (by weight)

Boron oxide (B ₂ O ₃)	34.37 - 45.62 %
Barium oxide (BaO)	29.91 - 36.55 %
Alumina (Al ₂ O ₃)	9.91 - 12.11 %
Strontium oxide (SrO)	4.48 - 6.72 %
Zinc oxide (ZnO)	3.52 - 5.28 %
Calcium oxide (CaO)	2.42 - 3.64 %
Nickel oxide (NiO)	0.66 - 0.98 %
Cobalt oxide (CoO)	0.33 - 0.49 %

Physical Properties

Specific Gravity	3.2 (g/cm ³)
Glass Transition Temperature	563 ± 10 °C
Softening Temperature (T _d)	598 ± 10 °C
Coefficient of Thermal Expansion	8.0 ± 1 x 10 ⁻⁶ /°C (50 - 500 °C)
Interfacial Bond Strength (Shear)	18.0 MPa
Interfacial Bond Strength (Tensile)	12.4 MPa
Dielectric Constant (1kHz, RT)	7.52
Loss Tangent (1kHz, RT)	0.0038

Recommended Firing Conditions

Ramp to between 800 °C and 850 °C and hold between 2 to 4 hours.

Heating/ cooling rate: 3 to 10°C/minute

Applications

Operational Temperature: up to 800 °C

The typical application of GL1705 sealing glass is to seal ceramics and metals at high temperatures. Common applications of sealing glass include solid oxide fuel cells (SOFCs), solar cells, sodium ion batteries, high-temperature sensors, and other sealing, bonding, or coating applications.

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