

Appearance

Glass-ceramic sealing glass light gray colored in powder form

Chemical Composition (by weight)

Bismuth oxide (Bi ₂ O ₃)	37.77 - 43.77 %
Silica (SiO ₂)	26.13 - 32.13%
Boron oxide (B ₂ O ₃)	15.47 - 19.47 %
Potassium oxide (K ₂ O)	1.92 - 3.92 %
Sodium oxide (Na ₂ O)	1.92 - 3.92 %
Alumina (Al ₂ O ₃)	1.91 - 3.91 %
Titanium dioxide (TiO ₂)	1.91 - 3.91 %
Lithium oxide (Li ₂ O)	0.47 - 1.47 %

Physical Properties

Specific Gravity	3.4 (g/cm ³)
Glass Transition Temperature	453 ± 10 °C
Softening Temperature (T _d)	530 ± 10 °C
Crystallization Temperature	630 ± 10 °C
Coefficient of Thermal Expansion (crystallized)	8.8 x 10 ⁻⁶ /°C (50 - 400 °C)

Recommended Firing Conditions

Ramp to between 700°C and 850°C and hold for 2 to 4 hours.
Heating or cooling rate: 3 to 10 °C/min

Applications

Operational Temperature: up to 600 °C

The typical application of GL1738 sealing glass is to seal ceramics and metals at high temperatures. GL1738 glass is resistant to alkali. 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.