



**Appearance**

Glass-ceramic sealing glass light gray colored in powder form

**Chemical Composition (by weight)**

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

**Physical Properties**

Specific Gravity	3.4 (g/cm <sup>3</sup> )
Glass Transition Temperature	453 ± 10 °C
Softening Temperature (T <sub>d</sub> )	530 ± 10 °C
Crystallization Temperature	630 ± 10 °C
Coefficient of Thermal Expansion (crystallized)	8.8 x 10 <sup>-6</sup> /°C (50 - 400 °C)
Dielectric Constant (1kHz, RT)	8.82
Loss Tangent (1kHz, RT)	0.0131

**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.