

### 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> )	47.39 - 53.39 %
Silica (SiO <sub>2</sub> )	15.60 - 21.60 %
Boron oxide (B <sub>2</sub> O <sub>3</sub> )	15.44 - 19.44 %
Sodium oxide (Na <sub>2</sub> O)	1.91 - 3.91 %
Alumina (Al <sub>2</sub> O <sub>3</sub> )	1.91 - 3.91 %
Titanium dioxide (TiO <sub>2</sub> )	1.91 - 3.91 %
Potassium oxide (K <sub>2</sub> O)	1.90 - 3.90 %
Lithium oxide (Li <sub>2</sub> O)	0.47 - 1.47 %

### Physical Properties

Specific Gravity	3.9 (g/cm <sup>3</sup> )
Glass Transition Temperature	446 ± 10 °C
Softening Temperature (T <sub>d</sub> )	509 ± 10 °C
Crystallization Temperature	620 ± 10 °C
Coefficient of Thermal Expansion (crystallized)	9.6 x 10 <sup>-6</sup> /°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 GL1739 sealing glass is to seal ceramics and metals at high temperatures. GL1739 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.