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## Appearance

Sealing glass white colored in powder form

## Chemical Composition (by weight)

| | |
|---|---|
| Phosphorus oxide ($P_2O_5$) | 44.37 - 50.37 % |
| Antimony oxide ($Sb_2O_3$) | 9.83 - 13.83 % |
| Barium oxide (BaO) | 9.06 - 13.06 % |
| Zinc oxide (ZnO) | 8.64 - 12.64 % |
| Calcium oxide (CaO) | 6.08 - 8.08 % |
| Sodium oxide ($Na_2O$) | 3.47 - 6.47 % |
| Potassium oxide ($K_2O$) | 3.25 - 5.25 % |
| Lithium oxide ($Li_2O$) | 0.89 - 2.89 % |
| Alumina ($Al_2O_3$) | 0.34 - 2.34 % |
| Boron oxide ($B_2O_3$) | 0.5 - 1.5 % |

## Physical Properties

| | |
|---|---|
| Specific Gravity | 3.2 ($g/cm^3$) |
| Glass Transition Temperature | 370 ± 10 °C |
| Softening Temperature ($T_d$) | 408 ± 10 °C |
| Crystallization Temperature | 620 ± 10 °C |
| Coefficient of Thermal Expansion | 14.5 ± 1 x $10^{-6}$ /°C (40 - 320 °C) |
| Interfacial Bond Strength (Shear) | 9.83 MPa |
| Interfacial Bond Strength (Tensile) | 8.98 MPa |
| Dielectric Constant (1kHz, RT) | 8.86 |
| Loss Tangent (1kHz, RT) | 0.0016 |

## Recommended Firing Conditions

Ramp to between 500°C and 550°C and hold for 1 to 2 hours.
Heating or cooling rate: 3 to 10 °C/min

## Applications

Operational Temperature: up to 550 °C
The typical application of GL1734 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.