GLASS NAME: S–8070

Equivalent to Sandia's SB–Glass

GLASS TYPE: Lithium Silicate

(Certified for non–weapons applications)

APPLICATIONS: Glass–ceramic used in high expansion sealing applications.

AVAILABLE FORMS: Cast Block, Rolled Ribbon, Air Quenched

Physical Properties		Temperatures (°C) Corresponding to Characteristic Viscosities	
Density (g/cm^3)	2.35	Strain Point ($10^{14.5}$ Poise):	459
		Annealing Point (10^{13} Poise):	481
Transformation Temperature, Tg(°C):	465	Softening Point ($10^{7.6}$ Poise):	625
Thermal Conductivity at 90°C, λ [W/(m•K)]:	1.25	Working Point (10^4Poise):	887
Linear Coefficient of Thermal Expansion α (x10^{-7}/K)*		See expansion curves on reverse side:	
$\alpha_{20°\text{ to }300°C}$:	94		
$\alpha_{20°C\text{ to }T_g}$:	104.5		

Electrical Properties		Mechanical Properties	
Log of Volume Resistivity in ohm•cm at 250°C: at 350°C:		Young's Modulus, E (10^3N/mm^2):	78
		Poisson's Ratio, μ:	0.22
Dielectric Properties for 1MHz at 25°C Dielectric Constant, ϵ_r: Dissipation Factor, tan δ (x10^{-4}):		Specific Thermal Stress, $\varphi = \frac{\alpha \cdot E}{1-\mu}$ [N/(mm^{2}K)]	0.94
		Knoop Hardness (N/mm^2) corresponding to 1.9613 N load:	

Optical Properties	
Index of Refraction at 587nm, n_d:	1.518
Stress Optical Coefficient at 546 nm, K = 10^{-6}mm^2/N	

*By controlling the crystal growth of β–cristobalite in this glass, linear thermal expansion coefficients over the 20°C to 460°C temperature range can be adjusted to vary from about 110 x 10^{-7}/K to 140 x 10^{-7}/K.

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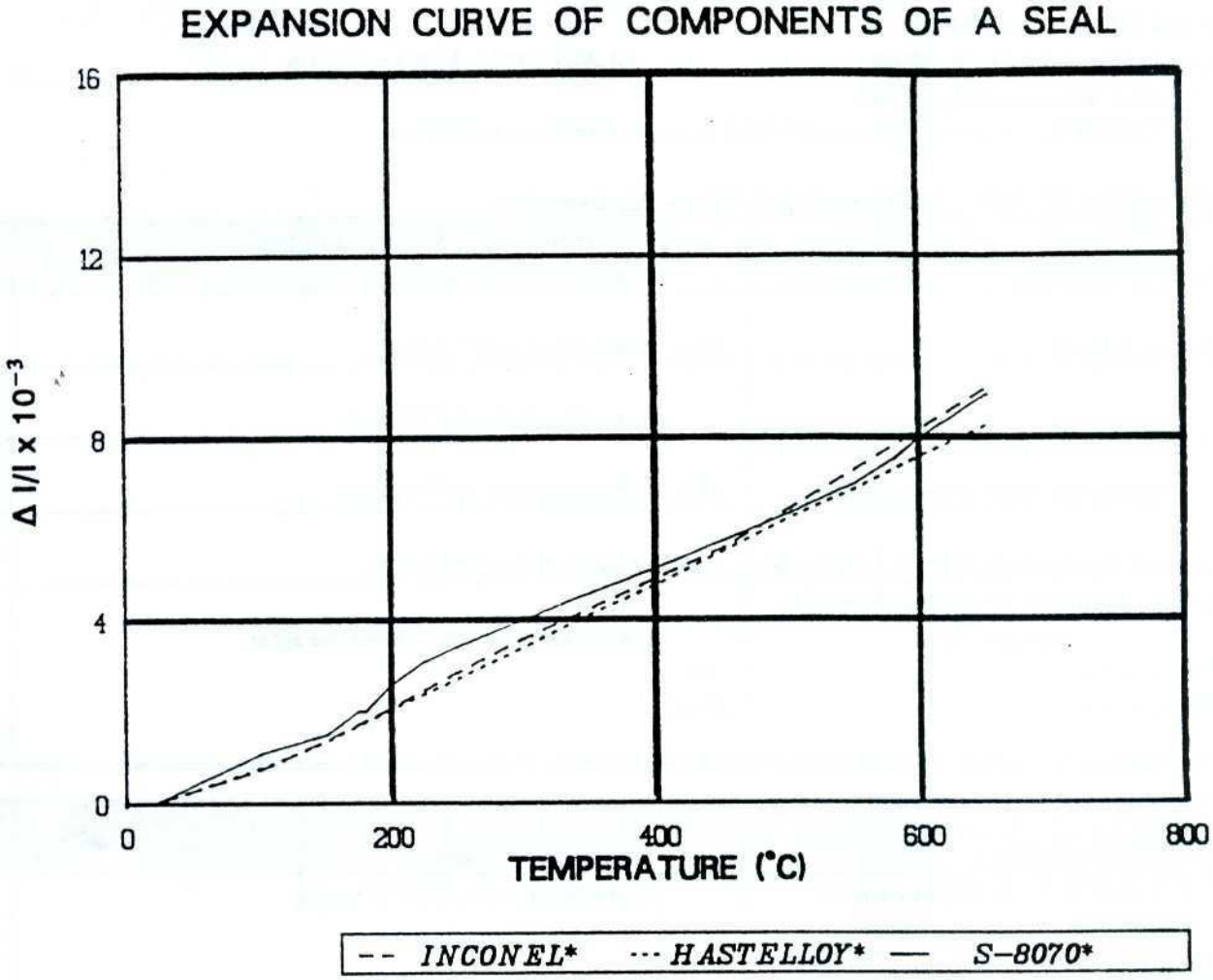

An example of S-8070 application is the formation of compression seals with Hastelloy C-276 feed throughs and Inconel-718 housings.

*Expansion values for the components have been provided by Sandia National Laboratories.