

Advanced Ceramics ZEMAT® ACL 2090 - Zero Expansion Glass-Ceramic

Category : Ceramic , Glass , Glass Ceramic

Material Notes:

"Zero Expansion" glass-ceramic is a transparent material now in production for applications requiring ultra-low thermal expansion. The primary crystal phase is a s-eucryptite ($\text{Li}_2\text{OAl}_2\text{O}_3\text{SiO}_2$) solid solution and the crystal size is limited to 50-100nm to permit high transparency in the visible and near infra-red. Information provided by Advanced Ceramics Limited (ACL)

Order this product through the following link:

http://www.lookpolymers.com/polymer_Advanced-Ceramics-ZEMAT-ACL-2090-Zero-Expansion-Glass-Ceramic.php

Physical Properties	Metric	English	Comments
Density	2.53 g/cc	0.0914 lb/in ³	
Weibull Modulus	6.80	6.80	
	@Temperature 500 °C	@Temperature 932 °F	

Mechanical Properties	Metric	English	Comments
Hardness, Vickers	205	205	kg.mm²
Modulus of Elasticity	89.6 GPa	13000 ksi	
Flexural Strength	98.0 MPa	14200 psi	
	@Temperature 300 °C	@Temperature 572 °F	
Poissons Ratio	0.24	0.24	
Shear Modulus	36.0 GPa	5220 ksi	Calculated

Thermal Properties	Metric	English	Comments
CTE, linear	0.500 $\mu\text{m/m-}^\circ\text{C}$	0.278 $\mu\text{in/in-}^\circ\text{F}$	
	@Temperature 20.0 - 100 °C	@Temperature 68.0 - 212 °F	
Specific Heat Capacity	0.790 J/g-°C	0.189 BTU/lb-°F	
	@Temperature 50.0 °C	@Temperature 122 °F	
Thermal Conductivity	1.17 W/m-K	8.12 BTU-in/hr-ft ² -°F	
	@Temperature 50.0 °C	@Temperature 122 °F	

Optical Properties	Metric	English	Comments
Refractive Index	1.54	1.54	
Transmission, Visible	90 %	90 %	transparent; thickness not quantified

Optical Properties	Metric	English	Comments
Electrical Properties	Metric	English	Comments
Dielectric Constant	6.62	6.62	
	@Frequency 9.30e+9 Hz	@Frequency 9.30e+9 Hz	
Dissipation Factor	0.072	0.072	
	@Frequency 9.30e+9 Hz	@Frequency 9.30e+9 Hz	

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