

CoorsTek Superstrate® TPS 99.6% Alumina Thin Film

Category : Ceramic , Oxide , Aluminum Oxide

Material Notes:

Applications: thin film substrates

Order this product through the following link:

http://www.lookpolymers.com/polymer_CoorsTek-Superstrate-TPS-996-Alumina-Thin-Film.php

Physical Properties	Metric	English	Comments
Density	3.95 g/cc	0.143 lb/in ³	ASTM-C373
Water Absorption	0.00 %	0.00 %	ASTM-C373
Particle Size	<= 1.0 µm	<= 1.0 µm	Grain Size

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell 45 N	87	87	ASTM-E18
Modulus of Elasticity	372 GPa	54000 ksi	ASTM-C848
Flexural Strength	682 MPa	98900 psi	ASTM-F394
Poissons Ratio	0.20	0.20	ASTM-C848
Shear Modulus	155 GPa	22500 ksi	Calculated

Thermal Properties	Metric	English	Comments
CTE, linear	6.30 µm/m-°C	3.50 µin/in-°F	ASTM-C372
	@Temperature 25.0 - 300 °C	@Temperature 77.0 - 572 °F	
	7.20 µm/m-°C	4.00 µin/in-°F	ASTM-C372
	@Temperature 25.0 - 600 °C	@Temperature 77.0 - 1110 °F	
Thermal Conductivity	7.90 µm/m-°C	4.39 µin/in-°F	ASTM-C372
	@Temperature 25.0 - 800 °C	@Temperature 77.0 - 1470 °F	
	8.20 µm/m-°C	4.56 µin/in-°F	ASTM-C372
	@Temperature 25.0 - 1000 °C	@Temperature 77.0 - 1830 °F	
Thermal Conductivity	27.0 W/m-K	187 BTU-in/hr-ft ² -°F	ASTM-C408
	@Temperature 100 °C	@Temperature 212 °F	

Component Elements Properties	Metric	English	Comments
Al2O3	99.6 %	99.6 %	

Electrical Properties	Metric	English	Comments
Volume Resistivity	>= 1.00e+10 ohm-cm	>= 1.00e+10 ohm-cm	ASTM-D257
	@Temperature 700 °C	@Temperature 1290 °F	
	>= 1.00e+12 ohm-cm	>= 1.00e+12 ohm-cm	ASTM-D257
	@Temperature 500 °C	@Temperature 932 °F	
	>= 1.00e+14 ohm-cm	>= 1.00e+14 ohm-cm	ASTM-D257
	@Temperature 300 °C	@Temperature 572 °F	
	>= 1.00e+15 ohm-cm	>= 1.00e+15 ohm-cm	ASTM-D257
	@Temperature 25.0 °C	@Temperature 77.0 °F	
	>= 1.00e+15 ohm-cm	>= 1.00e+15 ohm-cm	ASTM-D257
	@Temperature 100 °C	@Temperature 212 °F	
Dielectric Constant	9.9	9.9	ASTM-D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
Dielectric Strength	19.7 kV/mm	500 kV/in	ASTM-D149
	@Thickness 1.02 mm	@Thickness 0.0400 in	
	25.2 kV/mm	640 kV/in	ASTM-D116
	@Thickness 0.635 mm	@Thickness 0.0250 in	
Dielectric Loss Index	0.00010	0.00010	
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	

Descriptive Properties	Value	Comments
Color	White	
Permeability	NIL	
Surface Finish - (µin.)	<1	Polished; Profilometer, 0.004" Radius Stylus, 0.30" Cutoff, ANSI/ASME B46.1
	<10	Lapped; Profilometer, 0.004" Radius Stylus, 0.30" Cutoff, ANSI/ASME B46.1

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