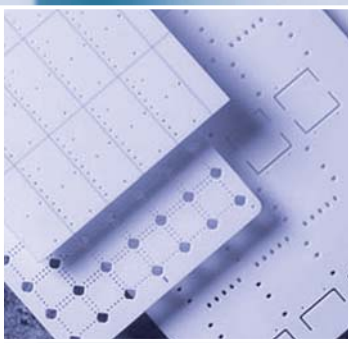
CoorsTek
Amazing Solutions.®



THIN FILM SUBSTRATES

www.coorstek.com

CERAMIC THIN FILM SUBSTRATES FOR HIGH-PERFORMANCE APPLICATIONS

Leading the Market

CoorsTek is one of the largest suppliers of ceramic thin-film substrates. From our highly refined material manufacturing processes to our detailed quality assurance programs, we lead the market with advanced substrates and world-class service and delivery.

Ultra-Pure Material for Exceptional Performance

CoorsTek maintains strict process controls and testing parameters to ensure a consistent product on every lot – providing optimal value and performance.

In-House Secondary Processing

Rely on us for advanced secondary processes like laser machining, polishing, and lapping.

Characteristics	Units	Test Methods	ADS-995	ADS-996	Superstrate® 996	Superstrate® TPS
Alumina Content (nominal)	Weight %	ASTM-D2442	99.5	99.6	99.6	99.6
Color	*	*	White	White	White	White
Nominal Density	g/cc	ASTM-C373	3.88	3.88	3.88	3.95
Hardness	*	ASTM-E18, R45N	87	87	87	87
Surface Finish As-Fired Lapped Polished	Microinches (Nanometers)	Profilometer 0.004" Radius Stylus 0.30" Cutoff ANSI/ASME B46.1	 5 (127) < 30 (762) < 2 (51)	 3 (77) < 12 (305) < 1 (26)	 2 (51) < 10 (254) < 1 (26)	 * <10 (254) < 1 (26)
Grain Size	Microns	*	< 2.2	< 1.2	< 1.0	< 1.0
Water Absorption	%	ASTM-C373	nil	nil	nil	nil
Gas Permeability	*	*	nil	nil	nil	nil
Flexural Strength	Kpsi (MPa)	ASTM-F394	83 (572)	86 (592)	90 (620)	99 (682)
Elastic Modulus	10^6 psi (GPa)	ASTM-C848	54 (372)	54 (372)	54 (372)	54 (372)
Poisson's Ratio	*	ASTM-C848	0.2	0.2	0.2	0.2
CTE 25° - 300° C 25° - 600° C 25° - 800° C 25° - 1000° C	1X 10^{-6}/ °C	ASTM-C372	 7.0 7.5 8.0 8.3	 7.0 7.5 8.0 8.3	 7.0 7.2 7.9 8.2	 6.3 7.2 7.9 8.2
Thermal Conductivity, 100° C	W/m °K	ASTM-C408	25.5	26.6	26.9	27
Dielectric Strength 0.025" 0.040"	AC Volts/mil	ASTM-D116	 575 450	 575 450	 600 450	 640 500
Dielectric Constant @ 1 MHz	*	ASTM-D150	9.8	9.9	9.9	9.9
Loss Tangent @ 1 MHz	*	ASTM-D150	0.0001	0.0001	0.0001	0.0001
Volume Resistivity 25° C 100° C 300° C 500° C 700° C	Ohm-cm	ASTM-D257	 > 1.0E + 14 > 1.0E + 14 > 1.0E + 12 > 1.0E + 9 > 1.0E + 8	 > 1.0E + 14 > 1.0E + 14 > 1.0E + 12 > 1.0E + 9 > 1.0E + 8	 > 1.0E + 14 > 1.0E + 14 > 1.0E + 13 > 1.0E + 10 > 1.0E + 9	 > 1.0E + 15 > 1.0E + 15 > 1.0E + 14 > 1.0E + 12 > 1.0E + 10

OpX℠

CoorsTek exclusive OpX manufacturing and quality system

Quick-Turn Prototyping and Manufacturing

*Data Not available

Note: The chart is intended to illustrate typical properties. Engineering data is representative. Property values vary somewhat with method of manufacture, size, and shape of part. This data is not to be construed as absolute and does not construe a warranty for which we assume legal responsibility.

European Union (EU) Directive on Restriction of Hazardous Substances (RoHS): The EU Directive on RoHS specifies that an electronic product or component may not contain a listed substance except as specifically provided in the directive. CoorsTek ceramic substrates meet the requirements of the Directive.

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Materials
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