



ULTRAFINE™ SUBSTRATES

NEW ULTRAFINE™ SUBSTRATES OFFER SUPERIOR FINISH FOR PRINTING AND ETCHING

Experts in Ceramic Substrates

CoorsTek, a long-standing authority on technical ceramic substrates for use in electronic applications, introduces a new type of ceramic substrate – the UltraFine™ thick-film ceramic substrate.

Exceptional Surface Quality

UltraFine substrates provide exceptional as-fired surface quality – preferred for eutectic metal bonding and fine-line screen printing and etching.

This new substrate virtually eliminates small dimples or variations on the substrate surface that may inhibit proper bonding between metallization and the ceramic - especially for eutectic-bonded metals. Utilizing 96% aluminum oxide, UltraFine substrates are offered in three thicknesses - 0.005", 0.010", and 0.015" (0.127, 0.25, and 0.38 mm).

Call 970.244.1165 for more information.

Characteristics	Units	Test Methods	ADS-96R
Alumina Content (nominal)	Weight %	ASTM-D2442	96
Color	*	*	White
Nominal Density	g/cm ³ (lb/ft ³)	ASTM-C373	3.77 min. (0.135)
Hardness	*	ASTM-E18, R45N	82
Surface Finish CLA (as-fired)	Microinches (Micrometers)	Profilometer 0.0004" Radius Stylus 0.30" Cutoff ANSI/ASME B46.1	≤35 (0.89)
Grain Size	Micrometers	Intercept Method	3 - 7
Water Absorption	%	ASTM-C373	nil
Gas Permeability	*	*	nil
Flexural Strength	Kpsi (MPa)	ASTM-F394	58 (400)
Elastic Modulus	10 ⁶ psi (GPa)	ASTM-C623	44 (331)
Poisson's Ratio	*	ASTM-C623	0.25
CTE 25° - 200° C 25° - 500° C 25° - 800° C 25° - 1000° C	1X 10 ⁻⁶ /°C (1X 10 ⁻⁶ /°F)	ASTM-C372	6.4 (3.5) 7.2 (4.0) 7.9 (4.6) 8.2 (4.6)
Thermal Conductivity 20° C 100° C 400° C	W/m °K	Various (Btu • in/ft ² • h • °F)	26 (180) 20 (139) 12 (83)
Dielectric Strength (60 cycles AC avg. RMS) 0.025" 0.040"	AC Volts/mil (Kv/mm)	ASTM-D149	600 (23.6) 490 (19.3)
Dielectric Constant (Relative Permittivity) 1 KHz 1 MHz	@25° C	ASTM-D150	9.5 9.5
Dissipation Factor (Loss Tangent) 1 KHz 1 MHz	@25° C	ASTM-D150	0.0010 0.0004
Loss Tangent (Loss Factor) 1 KHz 1 MHz	@25° C	ASTM-D150	0.009 0.004
Volume Resistivity 25° C 300° C 500° C 700° C	ohm-cm or ohm-cm ² /cm	ASTM-D257	> 10 ¹⁴ 1.0 x 10 ¹² 1.0 x 10 ⁹ 1.0 x 10 ⁸

*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 constitute a warranty for which we assume legal responsibility.

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