

COORSTEK
Amazing Solutions.®

MIDFILM™ SUBSTRATES

NEW MIDFILM™ TECHNOLOGY OFFERS NEAR THIN-FILM PRINTING PERFORMANCE AT THICK FILM PRICES

CoorsTek MidFilm substrates provide excellent high-frequency performance at prices far below thin-film deposition processes.

Ultra-Fine Lines

Our ultra fine line process yields high-resolution circuits with conductive traces and lines of constant height and width.

Broad Range of Applications

From high-frequency microwave to nanobit networks, fiber optics, and microchip modules, CoorsTek MidFilm fills the gap between thin-film deposition and thick-film processes.

Multi-Layer Capable

MidFilm substrates work exceptionally well with single or multi-layer designs.

Custom Geometries

Utilize CoorsTek's extensive machining and lasering capabilities to realize your custom geometry and hole pattern requirements.

For more information

Please contact our MidFilm substrate specialists.

For bare ceramic:
970-244-1165 or
gjsales@coorstek.com

For printed substrates:
303-277-4148 or
metz@coorstek.com

Bare Ceramic

2449 River Road
Grand Junction, CO 81505 USA
www.coorstek.com

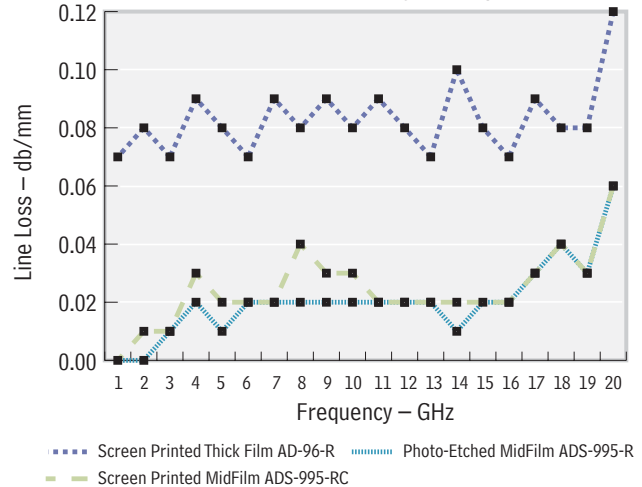
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Printed Ceramic

17750 W. 32nd Avenue
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Low Line Loss for High Frequencies



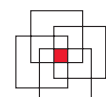
Results are from testing performed by Heraeus on a combination of CoorsTek substrates and Heraeus KQ 500 ink.

Property	Units	Test	ADS-995-R	ADS-96-R
Density	g/cc (lb/in ³)	ASTM-C 20-83	3.9 (0.141)	3.785 (0.137)
Hardness	R45N	ASTM-E18, R45N	84	82
Average Grain Size	micrometers (micro inches)	Intercept Method	2 (79)	4-7 (157-276)
Flexural Strength, 25 °C	MPa (Kpsi)	ASTM F394	440 (64)	399 (58)
Elastic Modulus	Gpa (Mpsi)	ASTM-C623	379 (55)	303 (44)
Poisson's Ratio	-	ASTM-C623	0.24	0.21
Coefficient of Linear Thermal Expansion 25° to 200° C 25° to 500° C 25° to 800° C 25° to 1000° C	10 ⁻⁶ /°C (10 ⁻⁶ /°F)	ASTM-C372	6.4 (3.6) 7.2 (4.0) 7.6 (4.2) 8.0 (4.4)	6.2 (3.5) 7.1 (3.9) 7.6 (4.2) 8.0 (4.4)
Thermal Conductivity 20° C 100° C	W/m K (BTU in/ft ² h °F)	Laser Flash	31 (215) 23 (160)	26 (180) 20 (139)
Dielectric Strength (60Hz AC) 0.025" thick	AC kv/mm (AS colts/ml)	ASTM-D2116	23.4 (595)	23.6 (600)
Dielectric Constant 1 KHz 1 MHz 1 GHz		ASTM-D150	10 10 10	9.5 9.5
Volume Resistivity 25° C 300° C 500° C 700° C	ohms-cm ² /cm	ASTM-D1829	>10 ¹³ >10 ⁹ >10 ⁸ >10 ⁷	>10 ¹⁴ 5x10 ¹⁰ 1x10 ⁹ 4x10 ⁷

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. MidFilm is a trademark of CoorsTek, Inc.

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.

MidFilm and CoorsTek are trademarks of CoorsTek, Inc. Amazing Solutions is a registered trademark of CoorsTek, Inc.



TECHNOLOGY
MATERIALS
MANUFACTURING
ASSEMBLY