



ESL ELECTROSCIENCE

CERAMIC TAPES &
THICK-FILM MATERIALS

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MULTILAYER DIELECTRIC COMPOSITION 4913-G

RoHS Compliant*

Dielectric composition 4913-G is a cadmium-free, lead-free, and nickel-free non porous multilayer dielectric for use on alumina substrates. This dielectric may be used with selected silver or gold based conductors or combinations of these metals.

PASTE DATA

Rheology:	Thixotropic, screen-printable paste
Viscosity: (Brookfield RVT, 10 rpm, ABZ spindle, 25.5 ± 0.5 °C)	250 ± 25 Pa.s
Colour:	Blue
Shelf Life (20 - 25 °C):	6 months

PROCESSING

Screen Mesh, Emulsion:	200 or 325 S/S, 37 µm
Levelling Time (at 20°C):	5 - 10 min
Drying Time (at 125°C):	10 - 15 min
Firing Temperature Range:	Optimum: 850°C Time at peak: 10 min
Total Firing Cycle:	1 hour
Substrate for Calibration:	96% alumina
Thinner:	ESL 401

ESL Europe (KOP) 4913-G 0507-D

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See Caution and Disclaimer on page 2.

TYPICAL PROPERTIES

Fired Thickness: (at least 2 layers between conductors on 96% alumina)	40 - 55 μm
Dielectric Constant (K) at 1 MHz: (at 25°C)	8 - 11
Dissipation Factor at 1 MHz: (at 25°C)	< 0.5%
Insulation Resistance: (at 100V DC)	>1 x 10 ¹¹ Ω
Breakdown Voltage: (at 25°C in air)	≥800 V DC / 25 μm
Leakage Current: (In 1M NaCl solution/10 VDC bias/5 minutes)	< 1 $\mu\text{A}/\text{cm}^2$

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*None of the six substances referred to in the RoHS Directive (2002/95/EC) are used in the formulation of this product.

CAUTION: Proper industrial safety precautions should be exercised in using these products. Use with adequate ventilation. Avoid prolonged contact with skin or inhalation of any vapours emitted during use or heating of these compositions. The use of safety eye goggles, gloves or hand protection creams is recommended. Wash hands or skin thoroughly with soap and water after using these products. Do not eat or smoke in areas where these materials are used. Refer to appropriate MSDS sheet.

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