



## ESL ELECTROSCIENCE

CERAMIC TAPES &  
THICK-FILM MATERIALS

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# MULTILAYER DIELECTRIC COMPOSITION **4913-G2**

## Cadmium, Lead and Nickel-Free\*

ESL 4913-G2 is a cadmium, lead 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

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

### PROCESSING

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

ESL Europe 4913-G2 0511-B

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See Caution and Disclaimer on other side.

## TYPICAL PROPERTIES

<b>Fired Thickness:</b> (at least 2 layers between conductors on 96% alumina)	30 - 50 $\mu\text{m}$
<b>Dielectric Constant (K) at 1 MHz:</b> (at 25°C)	6 - 10
<b>Dissipation Factor at 1 MHz:</b> (at 25°C)	< 0.4%
<b>Insulation Resistance:</b> (at 100V DC)	$>1 \times 10^{11} \Omega$
<b>Breakdown Voltage:</b> (at 25°C in air)	$>1250 \text{ V DC} / 35 \mu\text{m}$

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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.

**DISCLAIMER:** The product information and recommendations contained herein are based on data obtained by tests we believe to be accurate, but the accuracy and completeness thereof is not guaranteed. No warranty is expressed or implied regarding the accuracy of these data, the results obtained from the use hereof, or that any such use will not infringe any patent. ElectroScience assumes no liability for any injury, loss, or damage, direct or consequential, arising out of its use by others. This information is furnished upon the condition that the person receiving it shall make his own tests to determine the suitability thereof for his particular use, before using it. User assumes all risk and liability whatsoever in connection with his intended use. ElectroScience's only obligation shall be to replace such quantity of the product proved defective.

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