



## ESL ELECTRO-SCIENCE

CERAMIC TAPES &  
THICK-FILM MATERIALS

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### POLYMER DIELECTRIC

# 14401

### High Temperature Insulating Coating

ESL 14401 is a high temperature polymer dielectric, that provides very good adhesion, thermal stability, and electrical insulation when used over metal substrates such as aluminum or steel. It is designed for use with 19101 polymer silver conductor for heater applications requiring high temperature stability.

**Please review the Application Note: Polyimide Thick Film Materials before using this product.**

### PASTE DATA

<b>RHEOLOGY:</b>	Thixotropic, screen printable paste
<b>VISCOSITY:</b> (Brookfield RVT, ABZ Spindle, 10 rpm, 25.5°C±0.5°C)	60±10 Pa·s
<b>SHELF LIFE:</b> (at 0°C)	3 months
(at -18°C)	12 months

### PROCESSING

<b>SCREEN MESH/EMULSION:</b>	165-200/0-30 µm
<b>LEVELING TIME:</b>	5-10 minutes
<b>DRYING AT 125°C:</b>	10-15 minutes
<b>CURING CYCLE:</b>	320°C/150 minutes (10°C-15°C/min. rise)
<b>SUBSTRATE FOR CALIBRATION:</b>	alumina
<b>THINNER:</b>	ESL 455

14401 1401-B

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See Caution and Disclaimer on other side.

**TYPICAL PROPERTIES** (five print, dry, co-cured layers, 320°C/150 minutes, ≥50 μm)

<b>CURED THICKNESS:</b>	≥50 μm
<b>DIELECTRIC CONSTANT (K) AT 1 MHz: (25°C)</b>	3.8-4.8
<b>DISSIPATION FACTOR AT 1 MHz: (25°C)</b>	< 0.2%
<b>INSULATION RESISTANCE: (at 100 VDC)</b>	> 10 <sup>12</sup> Ω•cm
<b>BREAKDOWN VOLTAGE:</b> (at 25°C in air)	≥ 1500VDC/25μm
<b>STABILITY: (16 hrs. at 250°C)</b>	No measurable change of electrical properties
<b>COMPATIBLE MATERIALS:</b>	ESL 19101 Silver Conductor ESL 15501 Resistor

14401 1401-B

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**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 vapors 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. ESL Electro-Science 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 their own tests to determine the suitability thereof for their particular use, before using it. User assumes all risk and liability whatsoever in connection with their intended use. ESL Electro-Science's only obligation shall be to replace such quantity of the product proved defective.

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