



ESL ELECTROSCIENCE

CERAMIC TAPES &
THICK-FILM MATERIALS

416 EAST CHURCH ROAD
KING OF PRUSSIA, PA 19406-2625 USA

T: 610.272.8000

F: 610.272.6759

www.electroscience.com

DIELECTRIC COMPOSITION

4606

One-Part Insulator for Aluminum, RoHS Compliant*

ESL 4606 dielectric paste is designed for insulation of aluminum alloy substrates. This material can be used to provide the best voltage breakdown properties and insulation resistance. The total dielectric fired thickness must exceed 60 micrometers to achieve a breakdown voltage greater than 2,000VDC consistently. A lower thickness may be sufficient for less demanding applications. This material is suitable for automotive and LED applications.

PRODUCT FEATURES

- Alkali-free
- Moisture resistant
- High insulation resistance up to 200°C
- Suitable for use with 3000, 5000, and 6000 Series Aluminum

PASTE DATA

Rheology:	Thixotropic, screen-printable paste
Viscosity: (Brookfield RVT, ABZ Spindle, 10 rpm, 25.5°C±0.5°C)	125±25 Pa•s
Color:	blue
Shelf Life: (25°C)	6 months

PROCESSING

Screen Mesh/Emulsion:	145-165/0-5 µm
Leveling Time:	5-10 minutes
Drying At 125°C:	10-15 minutes
Firing Temperature:	530°C
Time At Peak:	10 minutes
Total Cycle Time:	50-60 minutes
Substrate For Calibration:	3 mm thick, type 3003 or 3103 aluminum
Thinner:	ESL 401

4606 1112 new

ESL Affiliates

ESL China • Rm#1707, Tower A • City Center of Shanghai • 100 Zunyi Road • Shanghai, China 200051 Tel: (011-86)-21-62370336 • Fax: (011-86)-21-62370338 • eslchina@eslshanghai.net

ESL Europe • 8 Commercial Road • Reading, Berkshire, England RG2 0QZ • Tel: (011-44)-118-918-2400 • Fax: (011-44)-118-986-7331 • Sales@ESLEurope.co.uk

ESL Nippon • Sukegawa Bldg • 6th floor • 3-4 Yanagibashi 1-chome • Taito-ku • Tokyo 111, Japan • Tel: (011-81)-3-3864-8521 • Fax: (011-81)-3-3864-9270 • Sales@ESL-Nippon.co.jp

See Caution and Disclaimer on other side.

COMPATIBLE CONDUCTOR MATERIALS:

9912-K: Post-fire, preferably, at 500°C

903-A: Co-fire with the last layer of 4606 at 530°C

2312-A-3: Post-fire in nitrogen atmosphere at 530°C

TYPICAL PROPERTIES

(Three layers of 4606 separately fired at 530°C using 903-A or 9912-K conductor.)

Total Fired Thickness:	50-60 μm
Insulation Resistance: (at 100 VDC, 25°C)	$\geq 10^{12} \Omega$
Insulation Resistance: (at 100 VDC, 200°C)	$\geq 10^{10} \Omega$
Breakdown Voltage: (at 25°C in air)	$\geq 2,000$ VDC for 60 μm

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* Complies with RoHS ELV, WEEE, and CHP 3 EC directives.

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 regarding the accuracy of these data, the results obtained from the use hereof, or that any such use will not infringe any patent. Electro-Science assumes no liability for any injury, loss, or damage, direct or consequential arising out of 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 with their intended use. Electro-Science's only obligation shall be to replace such quantity of the product proved defective.
