ESL ELECTROSCIENCE
CERAMIC TAPES & THICK-FILM MATERIALS
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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 200ºC
- 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

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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)	≥ 10^{12} Ω
Insulation Resistance: (at 100 VDC, 200°C)	≥ 10^{10} Ω
Breakdown Voltage: (at 25°C in air)	≥ 2,000 VDC for 60 μm

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