



ESL ELECTROSCIENCE

CERAMIC TAPES &
THICK-FILM MATERIALS

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POLYMER SILVER CONDUCTOR

1906

RoHS Compliant*

Polymer Silver for Low Temperature Substrates

ESL 1906 is a silver-filled, flexible resin material designed for use as a conductor on low-temperature substrates to achieve exceptional fine line printing. This silver conductor may be used in the manufacture of four and five wire analogue resistive and capacitive touch panels, for printed antennas in RFID applications and as conductors in flexible solar cells. After screen-printing and curing the silver film remains reasonably flexible and the resistance of the conductor remains constant over time. This versatile polymer has also been successfully used on other substrates such as cloth and glass.

PASTE DATA

| | |
|----------------------------------------------------------------------|-------------------------------------|
| Rheology: | Thixotropic, screen-printable paste |
| Viscosity: (Brookfield RVT, 10 rpm, ABZ, 25.5 ± 0.5 °C) | 300 ± 50 Pa.s |
| Shelf Life (at 5 - 25 °C): | 6 months |

PROCESSING

| | |
|---------------------------------------------------|-----------------------------------------------|
| Screen Mesh, Emulsion: | 400 S/S, 4 µm |
| Curing Schedule: | 125°C for 10 min followed by 150°C for 20 min |
| Substrate for Calibration: | PVC plastic card/alumina |
| Thinner: | ESL 402 |
| Screen Cleaner: | IPA |
| Ink Screen Life: | Ink does not dry on screen in continuous use |
| Flexibility Test: (BS EN ISO 1519:1995) | No cracking with Bend Test |

ESL Europe 1906 1203-B

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See Caution and Disclaimer on other side.

TYPICAL PROPERTIES

Cured Thickness:

(measured on a 100 mm x 0.25 mm conductor track)

10 - 20 μm

Approximate Coverage:

100 cm^2/g

Resistivity:

(measured on a 100 mm x 0.25 mm conductor track at 10 μm cured thickness)

< 50 $\text{m}\Omega/\square$

Printing Resolution:

(line/space)

50 μm / 50 μm
(subject to screen suitability)

Volume Resistivity:

(calculated from sheet resistance)

< 6×10^{-5} ohms / cm

Thixotropic Index:

(taken at 1 rpm and 10 rpm on Brookfield RVT)

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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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