



## ESL ELECTROSCIENCE

CERAMIC TAPES &  
THICK-FILM MATERIALS

416 EAST CHURCH ROAD  
KING OF PRUSSIA, PA 19406-2625, U.S.A

T: 610-272-8000  
F: 610-272-6759

[www.electroscience.com](http://www.electroscience.com)

# CERMET PLATINUM CONDUCTOR

# 5545

## For Heating Elements and Sensors

ESL 5545 is a screen-printable, dense, fritted platinum coating designed for use with partially stabilized zirconia for oxygen sensors. It can also be used on alumina for semi-conducting tin oxide sensors for the detection of gases like CO or hydrocarbons. As a sensor, it's change in resistance is linear over the temperature range -50 to 500°C. ESL 5545 is suitable for use as a heating element and is stable at 600°C in H<sub>2</sub> containing atmospheres without significant degradation of adhesion (when fired at 1300°C). Excellent performance, on pre-fired ceramics, is obtained when fired at temperatures of 850°C - 1300°C.

### PASTE DATA

<b>Rheology:</b>	Thixotropic, screen-printable paste
<b>Viscosity:</b> (Brookfield RVT, 10rpm, ABZ spindle, 25.5 ± 0.5 °C)	225 ± 25 Pa.s
<b>Platinum Content:</b>	64 - 67% by weight
<b>Solids Content:</b>	77 - 79% by weight
<b>Bonding Mechanism:</b>	Fritted
<b>Shelf Life (20 - 25 °C):</b>	6 months

### PROCESSING

<b>Screen Mesh, Emulsion:</b>	325 S/S, 25 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>	850 - 1300°C in air
	Optimum: 980°C
	Time at peak: 15 min
<b>Total Firing Cycle:</b>	1 hour
<b>Substrate for Calibration:</b>	96% alumina

ESL Europe 5545 0605-A

#### ESL Affiliates

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

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

ESL China • Room #1707, Tower A, City Center of Shanghai • 100 Zunyi Road • Shanghai, China 200051 • Tel: +86-21-6237-0336 and 0337 • Fax: +86-21-6237-0338  
ESLChina@eslshanghai.net

See Caution and Disclaimer on other side.

## TYPICAL PROPERTIES

<b>Resistivity (8 - 14 µm):</b>	45 - 110 mΩ/□
<b>Approximate Coverage:</b>	80 - 100 cm <sup>2</sup> /g
<b>Adhesion:</b> (90° pull, 2.5 mm x 2.5 mm pads, 62Sn/36Pb/2Ag solder on zirconia)	>5.0 kg

ESL Europe 5545 0605-A

**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.