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

METALLO-ORGANIC PLATINUM INK 5051

RoHS Compliant*

ESL 5051 is a sulphur-free, metallo-organic platinum, designed for screen-printing applications on glazed substrates. 5051 produces no noxious odour during firing and is Cd and Pb-free. The fired films of platinum of 5051 are suitable for resistance thermometers, heaters and terminations for chemical sensors. It is uniquely qualified in applications where the presence of sulphur containing platinum products would act as a poison for chemical gas sensors. A single layer will produce a 0.15 to 0.25 micron thick continuous bright film.

5051 is an alternative for expensive vacuum deposited platinum thin films.

PASTE DATA

Rheology:	Thixotropic, screen-printable paste
Viscosity: (Brookfield RVT, 10rpm, No. 4 spindle, 25.5 ± 0.5 °C)	25 ± 5 Pa.s
Shelf Life (20 - 25°C):	6 months

PROCESSING

Screen Mesh, Emulsion:		325 - 400 S/S, 0 µm
Levelling Time (at 20 °C):		5 - 10 min
Drying Time (at 125 °C):		5 - 20 min
Firing Temperature:	Optimum:	850°C
	Time at peak:	10 min
Rate of Ascent/Descent:		60 - 100°C / min
Substrate for Calibration:		Glazed ceramic*
Thinner:		ESL 401

*Recommended underglaze is Code 129-C

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. • 6th 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

TYPICAL PROPERTIES

Dried Thickness: 5 - 8 µm

Fired Thickness: 0.15 - 0.25 µm

Approximate Coverage: 680 sq. cm/g

Resistivity: 3 - 4 mΩ/□

Typical Properties on Glazed Ceramic

Number of Layers	Resistivity	Fired Film Thickness	Hot TCR (+25°C to 125°C)	Cold TCR (-55°C to +25°C)
1	3.20 Ω/□	0.20 µm	+3277 ppm/°C	+3287 ppm/°C
2	1.06 Ω/□	0.35 µm	+3331 ppm/°C	+3322 ppm/°C
3	0.64 Ω/□	0.60 µm	+3352 ppm/°C	+3353 ppm/°C
4	0.47 Ω/□	0.75 µm	+3358 ppm/°C	+3321 ppm/°C
5	0.38 Ω/□	0.88 µm	+3418 ppm/°C	+3414 ppm/°C
6	0.31 Ω/□	1.08 µm	+3407 ppm/°C	+3408 ppm/°C

***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.